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Vol. VII

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1930

No. 90

FRANK L. SMITH, CICERO J. LINDLY, HAL W. TROVILLION, ET AL., ETC., ET AL., APPELLANTS,

vs.

ILLINOIS BELL TELEPHONE COMPANY

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF ILLINOIS

FILED APRIL 25, 1930

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VOL. VII

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IN THE

District Court of the United States

FOR THE NORTHERN DISTRICT OF ILLINOIS,

EASTERN DIVISION.

ILLINOIS BELL TELEPHONE COMPANY, Plaintiff, vs. **P. H. MOYNIHAN, HAL W. TROVILLION, WILLIAM J. SMITH, ALEX J. JOHNSON, J. PAUL KUHN, JAMES R. CLARK and DAN JACKSON,** the Persons Constituting the Illinois Commerce Commission of the State of Illinois, and **OSCAR E. CARLSTROM,** Attorney-General of the State of Illinois, Defendants, and **CITY OF CHICAGO,** a Municipal Corporation, Intervenor.	**In Equity No. 3746**

EXHIBITS OF CITY OF CHICAGO, INTERVENOR
EXHIBIT NO. 90, 1880-1928
ANNUAL REPORTS

CITY'S EXHIBIT No. 90.

EXCERPTS FROM ANNUAL REPORTS OF AMERICAN BELL TELEPHONE COMPANY.

For the years 1880 to 1898.

1880.

The company has now a stock interest in the companies in New York, Chicago, Philadelphia, St. Louis, San Francisco, Elmira, New Haven and Canada, amounting, in the aggregate, at par, to $1,300,300, and owns the whole of the Boston Exchange, which has cost, with the Edison Exchange bought from the opposition, $130,358.97.

The business of all these companies is now upon a paying basis, although the requirements for new construction and for the cost of putting together two systems in New York, Chicago and Boston, have thus far absorbed all net earnings in these places, while in consequence of these changes the service in these cities is not yet fully satisfactory. (pp. 2-3.)

In regard to Claims for telephone patents advanced by other parties, the directors are advised by Messrs. Chauncey Smith and James J. Storrow, the counsel ofthe company, as follows:

"March 23, 1881.

"W. H. Forbes, Esq., President American Bell Telephone Co.:

"Dear Sir:

The condition of the patent controversies which the company is concerned in in relation to the Bell patents is as follows:

'These patents cover every apparatus capable of transmitting articulate speach by electricity which has yet been devised, and the more carefully the subject is examined the more certain it appears that no instrument can do it except by copying the method invented by Mr. Bell and patented to him by his patent of March 7, 1876. For eighteen months after the grant of that patent no one publicly, at least, disputed his claims to originality. After his telephones had gone into general use, the Western Union Telegraph Company set up three claimants, and pushed these claims in the Patent Office and in the courts.

But after the facts of the case had been fully brought out in evidence, the acute and sagacious counsel of the Western Union Telegraph Company were satisfied that Mr. Bell would prevail.

'This particular question, though the most important part of the controversy with the Western Union, was only a part of it, and the contract of Nov. 10, 1879 settled the whole controversy.'" (pp. 4-5.)

A large amount of work has been done in the electrical and experimental department, both in examining new inventions and testing telephones and apparatus, and in studying the question of overhead and underground cables, and the improvement of telephones and lines, for both short and long distance service. This work is expensive, but it is of the first importance to our company, and must be continued. (p. 6.)

Immediately after the settlement with the Western Union Company the policy of making only five-year contracts was adopted, in order that our company could have time to learn the best permanent basis for the relations between the company and its licensees, and to see which of them would prove satisfactory as associates. Many applications are now being made for permanent licenses, and we have begun to give such permanent contracts in places where the business is being prosecuted with energy and success, in exchange for a substantial interest in the stock of the local companies. By pursuing this plan, the company will gradually acquire a large permanent interest in the telephone business throughout the country, so that you will not be dependent upon royalties for a revenue when the patents shall have expired. (p. 7.)

Much of the electrical and legal work of these first years of the company, and indeed some of our expenses incurred in studying and classifying the business, are substantially for the establishment of the property, and might be charged to construction and capitalized, but the directors have preferred the more conservative policy of charging everything to operating which could reasonably be put there, although the result upon the books appears less favorable, in consequence, than the business prospects might warrant us in exhibiting.

If this course is continued, when the suits in progress become settled, and the rush to secure patents for all the early inventions is over, our operating expenses in the legal and electrical departments can be much lessened, and a business

of far greater volume than that of the past year can be done with no increase in our expense account. (p. 8.)

After two years passed in a struggle for existence, and a third largely devoted to the settlement of disputes inherited from that contest, the owners of the telephone patents, at the beginning of their fourth year, for the first time find themselves free from all serious complications, with nothing to prevent the company from directing its whole working force to the development of the business,and with a defined policy for its future operations, which seems to be working well in all parts of the country. (pp. 8-9.)

1881

The principal output of telephones has continued to be for Exchange Systems. Most of the large cities have shown a fair increase in their number of subscribers, while the increase in the smaller cities and towns has been large. The use of the Exchange System is extending into smaller places than was expected, and many villages, not large enough to maintain an exchange service, are providing themselves with club lines.

The connection of cities and towns with each other, and with smaller tributary places, is extending quite rapidly, and promises to add greatly to the value of the telephone service in each place, while also doing much to increase the stability of the companies acting in concert under our patents. (p. 1.)

We have, during the year, pursued the policy of giving permanent contracts to our licensees, taking a stock interest in payment. The company can in this way obtain a permanent vested interest in the telephone business independent of its royalty upon telephones. (p. 2.)

In exchanging short contracts for permanent licenses, dividends upon our portion of stock have been waived for periods varying according to the periods of the old contracts. The revenue from this source, for the next two or three years, will, therefore, be moderate; but, after that time, it should rapidly increase, as most of the exchanges promise to have a paying business. (p. 3.)

The companies in Philadelphia, San Francisco, and Chicago are now earning and paying dividends to us. The Boston exchange is also showing fair net results; but its earnings are still needed to provide construction, including provision for an underground system. (p. 3.)

Several suits are still in progress against parties who claim to have invented the telephone before Mr. Bell, or to have invented one not covered by his patents. These suits require constant attention on the part of counsel, and involve a large amounts of work in preparing and taking testimony. These, together with various smaller suits against infringers, the care of interferences at the Patent Office, and the examination of and application for patents for new inventions, call for a constant heavy legal expense, which must continue at least through this year.

The following report from counsel gives a brief resume of the condition of the suits:

40 State Street, Boston, March 23, 1882

W. H. Forbes, Esq., President, American Bell Telephone Company:—

Dear Sir:—

The most important patent litigation of the American Bell Telephone Company during the past year has been the following:—

Two suits on the Bell patents have come to trial, one in the U. S. Circuit Court at Boston, against Spencer, an agent of the Eaton Telephone Company, was vigorously defended by counsel and experts of recognized skill and reputation. The Court decided that the two Bell patents were valid, and that they were infringed by the use of "carbon transmitters" or "microphones." A case directly against the Eaton Telephone Company itself, in the U. S. Circuit Court in New York, was afterwards reached. That company did not think that the prospects of success justified a reargument before another judge, and a decree in favor of the patents has just been entered there.

A number of telephones, put out by irresponsible mechanics, were found in use in New York and elsewhere. Most of the users gave up their use upon being notified and visited, and it was often found that the unauthorized instruments were too badly made for satisfactory results. The amount of infringing use in the whole country probably does not exceed one or two days' output of your company.

Suits were brought in New York and in Chicago against you by J. H. Irwin, on his patents, which were alleged to cover the Blake transmitter. The case was argued in New York in June, and decided in your favor, on the merits, in October.

In the suit against the People's Telephone Company the defendants have substantially completed their testimony. It is very voluminous, and makes a great show to a casual reader. It appears to us, however, especially in connection with other facts known and capable of proof, to be unreliable, and insufficient to make out the defense set up. We see no reason to change the opinion we expressed last year.

A suit has been brought against the so-called Dolbear Condenser Telephone Receiver, and will be argued shortly.

The defence, and the evidence to sustain it, which has been set up, does not appear to us to afford any ground for uneasiness.

A suit has been brought against one of your licensees in Connecticut on the McDonough patents. McDonough filed an application in April, 1876, and the statements and descriptions in that application, confirmed by sworn statements subsequently filed by him, prove absolutely that he did not know the first requisite for the electrical transmission of speech, and no speaking telephone patent can lawfully issue on that application. That his application did not disclose a speaking telephone, and that no speaking telephone patent can issue on it, has been officially decided by the Patent Office, in 1876, in 1878 and again in 1881. The pretensions now put forward in his behalf are, therefore, enterprising rather than substantial. The claims in his patents are narrow, and for specific details of construction, which are not essential, and which, in fact, in our opinion, we do not use. No evidence has yet been taken in this case.

The numerous inventions which you own have involved a considerable number of other controversies, which have received due attention during the past year. None of them have resulted, or seem likely to result, in any serious injury.

Yours truly,

CHAUNCEY SMITH,
JAMES J. STORROW.

To obtain a permanent interest in the manufacture of telephones and apparatus, as well as to ensure the highest standards in the same, we have bought the plant and business of Charles Williams, Jr., of Boston, and an interest in the Western Electric Manufacturing Company of Illinois, and propose to merge the two in a consolidated company, which will avail of the good-will, business, and patents owned by that company, as well as our own, and secure an economical management for the whole of our manufacturing interests. We expect to make this an important and valuable part of our business. (pp. 5 and 6.)

The Company in Chicago is "Now earning and paying dividends to us."

1882

The following table shows the output of telephones, the number of Exchange Systems, and the number of subscribers and miles of wire, so far as reported:

EXCHANGE STATISTICS

	Jan. 1, 1882	Jan. 1, 1883	Increase for the year
Exchanges in Operation	486	735	249
Subscribers	70,525	97,735	27,210
Miles of wire	49,168	69,452	20,284

STATISTICS—EXTRA TERRITORIAL LINES

	Jan. 1, 1882	Jan. 1, 1883	Increase for the year
Licenses issued	75	256	181
Miles of pole lines	2,007	6,154	4,147
Miles of wire	3,037	13,653	10,616
	Feb. 20, 1882	Feb. 20, 1883	Increase for the year
No. of Instruments under rental	189,374	249,711	60,337

An examination of these figures shows how rapidly the telephone is passing into general use. It will be noticed that 249 new Exchanges have been opened during the year, and that there are now reported over 13,000 miles of wire connecting these systems with each other.

This feature of the business is becoming of great value to the public as well as the telephone companies, as the latter are enabled to offer much enlarged facilities at a moderate charge, without adding to the annual charge for exchange service.

The stockholders will see by the Treasurer's statement that the income of the Company from this source is steadily increasing, and the prospects for the future in this direction is promising. (pp. 1-2.)

From the local companies throughout the country the reports are encouraging. Most of them are now earning and paying dividends, and extending their business with energy.

An important feature has been the consolidation of local telephone interests into large companies, covering many counties, and even in several instances the whole or the greater part of entire States.

This policy has been assented to so far as its adoption seemed in the interest of convenient and economical management, but it should not be encouraged to an extent that would leave these companies entirely in the ownership of persons who are not residents in the territory where the business is carried on.

It has always been our policy to keep local capital and influence interested in the business as far as possible, and to this course may probably be attributed a good part of the success which has attended the development of the business.

The exchanges in New York, Chicago and San Francisco, where we have from the first held large interests, and in Boston are all in good condition and paying dividends. In the first three cities business men of prominence are interested with us and occupy seats upon the Board of Directors. (pp. 2-3.)

The Electrical Department has continued its work of examination of all inventions that have appeared, and of trying to improve our apparatus, but experiments upon new methods have been much restricted by the necessity of devoting time to matters immediately connected with the suits.

The telephone patents continue to be the object of attack, and the necessity for a heavy legal expense unavoidable. (p. 4.)

In the judgment of the Directors it has been important to your interests to secure further holdings in some of the companies acting under our license, the most important of which were in New York, Pittsburgh, Albany and Baltimore. This has been done at a cost of about $1,750,000 beyond the amount previously provided for, which has been met by temporary loans. (p. 5.)

1883

Our chief source of revenue is still from rental of telephones, the receipts from which were $1,695,678.58.

The dividends upon our stock in licensed companies amounted to $440,923.00, increase of over $200,000. The income from extra-territorial lines was $45,819.68, and this item should be largely increased in the coming year. (p. 2.)

The tendency toward consolidation of telephone companies noticed in our last report has continued and is for the most part in the interest of economical and convenient handling of the business. The connection of many towns together, causing large territories to assume the character of great telephone exchanges, made it of importance to bring as large areas as possible under one management to insure simple and convenient arrangements for furnishing rapid intercommunication. As methods are devised for making the telephone commercially useful over long lines, the advantages of this centralization of management will be still more apparent, as well as the importance to the public of having the business done in large territories under one responsible head, with far-reaching connections throughout the whole country. To make this service of the highest value to the people will be complicated enough under one control.

Were it in the hands of many competing companies, the confusion resulting would be very serious, as the value of the telephone will be largely measured by its capacity to give prompt connection with all parts of the country.

The question of bringing this about to the best advantage is the one to which we have now to address ourselves. The task is no light one, and it is one in which we have a common interest with the public; and in spite of the prevailing opinion that the development of the telephone substantially under one control is against public interest, we believe that an intelligent examination of this question would demonstrate that this is not true and that in no other way could the desired results be obtained and the difficulties be surmounted so rapidly and so well as by the present one. (pp. 4-5.)

It is estimated that 29,000 miles of extra-territorial lines are now giving 5,220 connections per day, or 1,905,300 per annum.

Moreover, it should not be lost sight of, that short as is the time since our business was started, it has been the fate

of most of the telephone companies to reorganize and rebuild their exchanges more than once, as the necessities of the service revealed themselves, and that these companies are by no means at the end of these costly changes yet.

The Electrical Department continues its work of original investigations, of experiments upon apparatus, of examining and testing all new inventions that appear, and of tests and experiments required in the suits. Several inventions which promise to be of great value in the future development of the business have been produced during the year. Especial attention is being given to long-line service, and we have just built a line between Boston and New York, now almost ready for trial; with this we shall see whether sufficiently good results can be obtained for commercial purposes, and if the result is satisfactory, we propose to have the experiment at once followed by the establishment of lines for public service between these and other points of importance. We have renewed our arrangement with Mr. Bell for his experimental work and that of his associates in the Volta Laboratory, and all telephonic inventions made by these gentlemen belong to the company. They are now at work upon some investigations of importance and we shall hope for valuable results.

Our legal expenses continue large, and this must be expected until several of the suits now in progress are finished.

The stockholders have been annoyed by having pamphlets and newspaper articles repeatedly sent to them in the interest of companies claiming to have valuable telephone rights with which they proposed to take the field, or to destroy the value of the patents of this company. The purpose of this method of attack is manifestly to alarm our stockholders and create distrust in the public mind as to our property. This seems to us unwarrantable and wholly unusual among business men of repute, a weapon only likely to be used by those who have no confidence in legitimate business methods for their ends, and we have declined to take part in the attempt to carry the contest into the newspapers or to be drawn into negotiations with parties whom we are advised have nothing of value to sell.

As some of our stockholders, unused to litigation and unacquainted with questions of patent law, have made inquiries of us as to the meaning of these frequent attacks, we

have thought it proper to send to each stockholder and to our licensees, who are equally interested in all that concerns us, the brief and arguments of our counsel in the recent case against the Overland Company in Philadelphia, where the story of the principal claimants is made public, as well as an interesting account of Mr. Bell's invention. (pp. 6-9.)

With the acquirement of large interests in our licensed companies comes the necessity of more oversight of the business, and, as far as it can be obtained without absolute ownership, an exact comparison of results. The organization of the company should be shaped to meet these requirements, and with proper watchfulness and effort on our part, we may expect steady growth and improvement in the character of our business in all its branches. (p. 10.)

1884.

We have received during the year $3,051,150. in stock of licensed companies for licenses and $107,450 for cash paid, and have now a total of $22,125,173.36 in stocks.

As we have sold our licenses to these companies, we have charged the stocks received in payment to "Stocks" account, and credited the amount to Patent Account, Profit and Loss. When the amount of stock, therefore, amounted to more than the value of the patent rights upon our books, the Patent Account appeared upon the credit side, where it now stands at $9,540,120.31, as "Patent Account Profit and Loss." (p. 6.)

It has not, however, been a year when new enterprises of any kind could be easily promoted, and in common with other industries the telephone companies have found it difficult to sell stocks or bonds for their construction purposes. It has probably been as much due to this as to the lessening of the demand for telephone service that our output of instruments has decreased.

Most of the companies have met this condition of affairs by applying their net earnings in part, and in some cases wholly to their new construction.

The result of this conservative policy, although temporarily disappointing to stockholders, has been to materially increase the intrinsic value and earning capacity of the properties; and in view of the importance of an early occupation of the field, while numerous infringing claimants were striving to gain a foothold, we have no doubt the policy was the right one. How far it should be continued under the most favorable conditions that now prevail, is to be carefully considered by each company. (p. 7.)

The investment by the licensed companies of their net earnings in development has prevented such an increase of our income from our stock in those companies as we had hoped for. (p. 8.)

The experimental line between Boston and New York has proved entirely successful. It was built with a metallic circuit of two copper wires (hard drawn No. 12), and was placed upon poles belonging to the several companies occupying the route via Providence. Conversation can readily be carried on in low tones, the speaker's voice being easily

recognized. There can no longer be a question of the success of long-distance lines between all points within two hundred to three hundred miles of each other, and even more, where the demand for such service is of a character to warrant the building of metallic circuit systems. Such systems will be very costly, and our present licensed companies are neither provided with capital nor organized for the purpose of undertaking a work of the proportions which commercial success in this business will involve.

It therefore becomes necessary for our company to take the lead in building lines of connection between the large cities, and a beginning will be made this summer between New York and Philadelphia. (p. 9.)

During the past year the Electrical Department has been reorganized and its scope somewhat extended.

In the laboratory, all investigations and experiments in connection with the patent litigation are conducted. In addition to these, a series of experiments on insulation materials is being conducted with special reference to underground and cable systems.

In the Patent Division, the preparation of the history of the development of the telephone system has been continued, and is now nearly complete. The usual examination of all new inventions and patents, with special reference to practicability and the state of the art, has been made. The extent of this work is best shown by the fact that up to the close of the year there have been issued 1,330 United States patents on telephone and telephonic apparatus.

In the Mechanical Division, established this year, good and efficient service has been done.

The principal work which has shown results has been: A series of experiments on long-line apparatus; the protection of our systems and apparatus from strong currents, either lightning or electric-light currents; perfecting the central office apparatus to be used in small exchanges; simplifying and perfecting the apparatus in general use; testing line wire and establishing a standard for the same. (p. 11.)

As an instance of the rapid depreciation of property and of the changes likely to occur in electrical inventions, it may be well to say that the telephone system in Boston has been twice rebuilt, and the new multiple switch-boards for the Boston office had hardly been received and had not been put in

place, when the invention of an improvement in detail gave such promise of excellent results that the boards were shipped back to Chicago to have the new invention added to them.

The sum, then, charged to the subscriber does not seem large when the cost of the service rendered by the telephone company is considered. Neither does it seem exceptional when it is seen what the subscriber receives for his payment of three to six cents. He obtains an immediate conversation with any subscriber to his exchange, a conversation which renders needless the employment of messengers, telegraphs, and even the mail, all of which modes of communication are either slower or more costly, and often both more slow and more costly and less satisfactory than that which is given by the telephone. The subscriber also obtains the privilege of communicating for a small extra charge with the subscribers of any exchange in towns or cities within a limited distance from his own. And as the number of subscribers in each exchange increases, and as the distance through which telephonic communication is possible becomes extended, the advantage to the subscriber is also greatly increased.

(pp. 12-13.)

EARNINGS—1884—10 MONTHS.

Rental of Telephones	$1,635,848.64
Sales of Instruments and Supplies	5,803.55
Royalty from Manufacturers	
Dividends	317,887.20
Commission from Extra-Territorial and Branch lines	58,109.75
Commission from Telegraph business	11,290.10
Interest	38,604.73
	$2,067,543.97

N. B. The above statement shows the business for ten months; previous financial years ended Feb. 28. Future financial years will end Dec. 31.

(p. 14.)

ASSETS.

Telephones	$ 558,319.51
Stocks	22,125,173.36
Merchandise & Machinery	18,851.28
Lines	102,270.55
Bill & Accounts Receivable	681,493.74
Cash and Deposits	520,536.33

(p. 15.)

1885.

With longer experience the telephone companies have learned that the cost of maintaining and reconstructing their plant has been generally underestimated, and many of them have in consequence been forced to recognize that the profits upon telephone business are less than they had expected and believed. For this reason they have appealed to us to make certain concessions in their contract relations, and we have given this subject careful consideration.

We think that our licensed companies should be led to feel that it is for our interest as much as their own that they should be successful. The agreements, speaking broadly, between our licensees and ourselves, are that they shall furnish capital for establishing and developing the business, and that we shall supply the patents, which for a time are expected to give exclusive rights, and returns large enough to invite capital to an industry involving unusual risks.

We have met our licensees; first, by agreeing when desired, that our share of net earnings, jointly with theirs, may be used for construction purposes, so that we in these cases are sharing the cost of developing the business; second, we have made a reduction in the royalties on telephones used in small places where the rates are low. This reduction involves a loss of royalty amounting to about $200,000 per annum on our present business, offset, as we believe, by keeping more telephones in use than would be out under the old rates, and it gives relief where it is most needed.

In the case of the New England Company, we have made substantial concessions to the licensees, and have agreed to amend their contract so as to provide for future construction, and at the same time to enable dividends to be paid from the net earnings, which have necessarily been used for some time past for the purposes of construction; and we are now carefully maturing plans by which those companies which are not receiving a fair return upon the cash actually invested in the business may no longer be deprived of an income upon their property. (pp. 5-6.)

In our report last year it was mentioned that additional capital would be needed for this business; and that we had applied to the Massachusetts Legislature to authorize an increase in our stock. As this was refused, and the volume of business, if successful, will need capital far beyond the amount

of our unsold stock, we have been obliged to make other provision for developing this important branch, and have organized a company under the laws of New York for this purpose, called the American Telephone and Telegraph Company. Mr. Vail has been made President of the company, and has general supervision of its work. Mr. E. J. Hall, Jr., is the general manager, with immediate charge. As soon as sufficient encouragement is received to continue building these long lines, the above company is prepared to build between Boston and New York, and other important points. (pp. 6-7.)

During the year a number of our cases have been argued and decisions reached or injunctions granted. (pp. 7-8.)

It has been urged that nothing but the annulling of our patent in suit, by the government itself, would suffice to enable others to enter the telephone field. There is no weight in this, for with every decision in our favor, we have barely been able to keep the field free from serious infringement, and it is certain that one decision by the United States Court, invalidating our patent would be enough to flood the country with competing companies.

When he (the Attorney General) made it public, it seemed proper to place the facts in the case before the President; and the president of your company went to Washington, and had an interview with Mr. Cleveland. The latter was told that the present owners of the Bell patents had bought them in good faith, in the belief, which they still entertained, that they were properly obtained, and were valid; and repeated decisions of the United States courts in their favor, the parent company and its licensees had invested vast sums of money in putting this invention into use throughout the country; that we had expended eight years of litigation, involving over fifty days of argument by the ablest counsel we could procure, the taking of over five thousand pages of testimony, and the expenditure of half a million of dollars; that our licensees could not but view with alarm the prospect of going once more over this expensive and tedious road, in the face of a suit brought by the government at the instance of a company which they believed to be wholly speculative and irresponsible. (pp. 14-15.)

But the government adheres to the advice of Mr. Lamar, and on the twenty-third day of March, filed a bill against this company and our licensees in Ohio, at Columbus, Ohio, before Judge Baxter, who would also have heard the case had

it been brought at Memphis. Messrs. Thurman, of Columbus, and Lowery, of New York, with several others, have been selected as counsel, and it is not our belief that the management of the suit is to be left within the control of the Pan Electric Company, or that the government intends to allow any unnecessary delay to be interposed in its prosecution. It is to be noted, however, that it has taken this distinguished group of counsel over two months to decide the questions which Mr. Goode disposed of in a single day.

While there has undoubtedly been widespread feeling of anxiety among our stockholders and licensees, at finding the power of the government thrown into the scale before its own courts, under the circumstances just described, our counsel and the directors feel no uneasiness as to the result of such a suit, as all the matters involved have been the subject of repeated decisions. (p. 15.)

The laboratory has conducted a large number of experiments in connection with patent litigation. In addition to this, further examination has been made into the matter of underground work, and cable systems, and a series of experiments is in progress. Further experiments are also in progress in reference to underground work, in connection with overhead systems.

The Patent Division has proceeded with its work of digesting and indexing, for easy reference, patents of the United States and Great Britain relating to electricity, and in bringing forward the history of the development of the telephone system, and in examining and reporting upon the novelty and value of various inventions submitted to the Company. This division has also, during the year, prepared specifications and applications for patents for inventions made by employees of the Company and others, which have been thought of sufficient value to patent. (pp. 18-19.)

Different qualities of telephone service are just as necessary as different qualities of clothing, food, or railroad service, and prices of telephone exchange service must vary as surely as prices of other commodities, unless cities are willing to content themselves with the kind of equipment and service which answers in a village which they are not. In a small town one can only reach perhaps one to two hundred persons, in a city as many thousands; this is worth the difference, especially since the apparatus must be much more costly throughout.

It is natural that the fact that the price of telephone service increases with the number of subscribers, instead of decreasing, should not be understood by those outside of the business; perhaps if the practice of charging in proportion to the number of persons reached, in other words, in proportion to the facilities placed at the disposal of a subscriber, had been adopted, the reason for the increase in price would have been easier to comprehend.

The calls increase very rapidly with the increase of subscribers, and this means more operators in proportion, and the operators are a large part of the expense.

The telephone situation is worthy of more careful attention than it has received at the hands of the public. Its features are peculiar, and the development of telephone facilities is certainly of high importance to our people. Although in the ten years that have passed since the invention became public, 156,000 miles of telephone wire have been built, over which 275,000,000 communications now pass annually, we are in reality only at the threshold of the business. It is possible already to talk with ease between Boston and Philadelphia over our experimental wire, yet the connection of our principal cities and large towns by thoroughly practicable telephone systems, has, in fact, only been begun.

With the improvements which are rapidly coming into use, the aim must be nothing less than to provide a complete working system throughout the United States, which will give facilities for instant conversation between all points within many hundred miles of each other, such as is now possible within the limits of a single exchange. This cannot be accomplished by competing companies, each reaching only part of the persons wishing to become subscribers to such a system. The service is divested of half its value the moment half the people retire to a second system, and of much more should there be still further subdivision. In other words, the value of the thing consists in placing each person in the same system with each other one, and this can only be done under one general plan.

The contracts which we have made with our licensees are all shaped with this complete general telphone service in view. For purposes of intercommunication between existing smaller systems, it is arranged that all shall work together, and the fact that the telephone companies throughout the land have been held under such a general plan by the force of a government patent, has been and is of the highest im-

portance to the public, for in no other way could even the present condition of telephone development have been reached so soon, or without great confusion among competing companies and the multiplication of the wire nuisance, which would have been intolerable.

To any one who will think what it would mean if instant verbal communication could be had by any person here with every city and town in New England, and as far as Philadelphia, perhaps even Washington and Chicago, with similar facilities in all parts of the country, it must be clear that this is something well worth the risk of money, thought, and labor by the companies; well worth encouragement from the people. The work that has been done is at least some guaranty of what will follow, if the protection promised by our patents is not interfered with. The public is ripe for the use of such a convenience, the inventive talent of the country is providing new methods for making it available; will the legislatures interpose to prevent all progress, through misconception of the problem, or because misled by interested parties?

What has already been accomplished has been under every discouragement that can be thrown upon a property resting on patent rights. But a small percentage of patented inventions prove valuable, and all such are usually compelled to run the gauntlet of lawsuits from pretenders, so long as their patents live. Capital, therefore, is timid about such investments, and nothing but the expectation of large temporary returns will bring it out for the development of a business like this. (pp. 21-25.)

1886.

The patent division contines its work of digesting American and British patents relating to electrical subjects, including not only inventions claimed, but inventions described in specifications unclaimed.

It has also prepared during the year and reported on a large number of subjects submitted by the officers of the company.

The electrical division has been much occupied in experimental work, at the instance of counsel engaged in our various litigations.

It has also begun and made considerable progress in an exfended series of experiments on pole lines and on mixed cables and pole lines for calculating the dimensions of pole wires and cables forming the alternate links in any chain of telephonic communication.

The mechanical department has given much time to studying long-distance transmitters, and to the general question of transmitters of the granular carbon type.

It has also devised a suitable form of instrument for use in mines, and a form for the use of divers. (p. 8.)

1887.

The long-line service has been extended from New York to Albany, and to Boston, making a total of 550 miles of pole lines and about 10,000 miles of wire.

The success electrically, as well as commercially, has been beyond our expectations.

The income from the long lines is now more than sufficient to meet the current expenses, and there is every reason to expect that before next year it will pay a moderate profit. The great cost of the plant is to be borne in mind in considering the direct profit from the long-line service, but the importance of the system as a safeguard to our business cannot be overestimated.

It is intended to complete this year the lines between New York and Boston, to extend from Albany towards Buffalo, and to build a line from Chicago to Milwaukee. The estimated cost is about $1,000,000.

The patent division has continued its work of collecting, digesting and studying information upon electrical matters, and preparing reports upon questions submitted to it by officers of the Company.

It has also during the year considered and passed upon specifications for inventions for which the Western Electric Company intend applying for patents.

The electrical division has been mainly occupied in investigation for the accumulation of technical information for the use of our counsel. It has also begun, and is now pursuing, a series of experiments on multiplex telephony and on simultaneous telephony and telegraphy.

The mechanical department has experimented with a large number of instruments sent to it for examination, and it has also given much time to experimentation with a view to the improvement of our standard instruments, and to the solution of the problems which have been brought out by the long-line service.

Considerable time has also been spent in the study of magneto transmitters and in devising different forms for local uses. (pp. 5-6.)

1888.

The reports of the fifty licensed telephone companies within the United States show in general a steady increase of business and a conservative management of affairs. It has been our aim to use the influence of the American Bell Telephone Company to encourage liberal expenditure for the improvement and extension of plant and for the bettering of the service. (p. 1.)

The lines of the American Telephone and Telegraph Company have been extented during the year 1888 from Albany to Buffalo, and new lines have been built from Chicago to Milwaukee, and from Boston to Providence. An additional pole line has also been constructed between New York and New Haven. Altogether, about $2,200,000 has been spent on the long lines, which now comprise 26,038 miles of wire. The greater part of this money has been obtained by the issue on the first of August last of $2,000,000 7 per cent debenture bonds of the American Bell Telephone Company, which were offered to the stockholders at par. The whole amount was subscribed for, except 12 bonds of $1,000 each, which were afterwards sold at auction.

The service on the long lines has been excellent and the business is increasing, but the best results cannot be expected until the principal exchanges shall have adopted the metallic circuit system; exchange subscribers in the cities connected by the long lines will then be able to converse directly through their exchange instruments.

Besides the direct profit from the long lines, there have been important indirect advantages resulting from their construction. Wherever they have been built, the local companies have adopted a higher standard of construction and service and their extra-territorial tolls have greatly increased.

The success of the long lines has convinced your directors that the system should be extended. To provide money for the work and for other contingencies, the Legislature has been asked to authorize an increase in the capital stock of the American Bell Telephone Company. The advantage to the public of the proposed development and extension is so plain that we hope it will be generally approved. (pp. 6-7.)

The Patent Division has pushed forward its work of digesting information upon electrical subjects, in addition to its

regular work of reporting upon the various questions submitted to it by officers of the company. It has also during the year advised with the Western Electric Company, and, to some extent, with the Canadian Company, upon technical questions submitted by them.

The Electrical Division, as heretofore, has been largely occupied in the investigation of technical matters for the use of our counsel. It is also conducting a series of experiments on different forms of telephonic instruments and apparatus. (pp. 9-10.)

1889.

The mechanical department, with its other work, has continued its study of transmitters, designing new forms of transmitters and telephones, as well as instruments for special purposes. It has also been much occupied with general questions relating to subways and cables and with the problems suggested as the underground work progresses.

The Patent Division has continued its work of collecting, digesting and arranging information upon electrical subjects and preparing reports based thereon. It has also prepared the applications for patents upon such inventions as have been made by our own people, or bought by us before patenting. It has advised with the Western Electric Company upon its electrical matters and has aided it in the preparation of the defense in certain litigations. It has also to some extent assisted the Bell Telephone Company of Canada.

The electrical division is continuing its conduct of a series of experiments on different forms of telephonic instruments and apparatus. (p. 7.)

1890.

During the year the Patent Division has prepared and submitted an unusually large number of reports on subjects referred to it, has pushed forward its digests, and has besides given a good deal of time to the preparation of matters in aid of our counsel in various litigations. It has also aided the license companies in suits against certain electric lighting companies and in railway disturbance matters.

Much and useful work has been done by the Mechanical Department looking to the perfecting of the apparatus used in the exchange part of our business; several new forms of instruments have been devised for special services, and good word has been done in raising the standards of inspection and in assisting the licensee companies in educating competent heads of inspection departments; all effort is made to encourage the utmost freedom of communication and suggestion between this department and our licensees. (p. 8.)

1891.

The Electrical Department, the Patent Division and the Mechanical Department have been much called upon during the year in their several lines for advice, information and experiment. The great additions constantly being made to the sum of electrical knowledge and the rapid increase in the number of patents issued for electrical inventions, adds to their work; the various branches of this knowledge being so inter-related that it is not wise not to keep a lookout over the whole field, while of course giving particular attention to such matters as particularly concern our own business. (p. 8.)

1892

The work of connecting together the territories of the different licenses has taken a great step forward. It will be remembered that in the last report the intention was announced of the Long Distance Company of filling the gap between Cleveland, Ohio, and Hammond, Ind., thus giving thorough service between Boston, New York and Chicago. This has been done—that Company having added to its construction during the year, 494 miles of pole line, and 8,645 miles of wire, of which 365 miles represent the extension from Cleveland to Chicago, about 74 miles a spur connecting Detroit, by the way of Toledo, with the through line, and the remainder, some 93 miles, the joint construction and reconstruction upon the Hazleton and Altoona line, in Pennsylvania. Of the added mileage of wire, 7,150 miles are strung on the New York-Chicago line; the remainder are wires added to the existing system, chiefly in the New England States and Pennsylvania.

The general route of the line to Chicago is by the way of Newark, N. J., Harrisburg and Pittsburgh, Pa., Cleveland and Toledo, O., and South Bend, Ind.

To determine the feasibility of transmitting speech over the theretofore unapproached distance of one thousand miles —the limit of the successful transmission of speech had not before exceeded 500 miles—a special experimental circuit, consisting of two number 8 hard-drawn copper wires, was constructed. This wire weighs 435 pounds to the mile, and the circuit contains 826,500 pounds of copper. A circuit of the weight generally used for telephone service would weigh less than 200,000 pounds.

The success was so complete that the lines were at once extended to Boston, and two more circuits ordered strung from New York to Chicago. (p. 10.)

That this constitutes an addition to the social and business facilities of the country of far reaching consequence, needs, of course, not to be added. Nor, I suppose, needs it to be said that such a performance taxes to the uttermost the technical resources of the companies in construction and equipment, and in an equal degree their vigilance in inspection and maintenance. (p. 11.)

The expiration on March 7, 1893, of United States Patent No. 174,465, issued to Prof. Bell, occasioned some confusion

in the public mind, owing to the fact that it was not clearly understood that Prof. Bell's patents were two in number, the second of which, No. 186,787, dated January 30, 1877, will continue in force until January 30, 1894. (p. 12.)

In their several fields, the technical departments, the Engineers, the Electrical, the Patent Division and Mechanical Department have followed closely the practical operation of the telephone business, and have rendered much and useful assistance during the year. (p. 15.)

LEDGER BALANCES, DEC. 31, 1892

	DEBTORS	
Telephones	$ 1,133,900.39	
Real Estate	950,976.61	
Stocks	34,120,795.56	
Merchandise and Machinery	14,440.73	
Bills and Accounts Receivable	3,781,747.52	
Cash and Deposits	2,365,419.10	
	CREDITORS	
Capital Stock		$17,500,000.00
Debenture Bonds, 1888		2,000,000.00
Bills and Accounts Payable*		1,334,515.76
Patent Accounts (Profit and Loss)		10,169,324.73
Profit and Loss		5,684,104.97
Reserve		3,527,722.83
Surplus		2,151,611.61
	$42,367,279.91	$42,367,279.91

*Of this amount $1,050,000 is for the dividends payable Jan. 16, 1893, to stockholders of record Dec. 31, 1892. (p. 16.)

COMPARATIVE STATEMENT OF EARNINGS AND EXPENSES

	1891	1892
Earnings		
Rental of Telephones	$3,127,783.01	$3,303,753.10
Dividends	1,320,645.92	* 1,422,047.93
Commission from Ex. Terr. Lines	91,280.73	101,306.32
Commission from Teleg. Business	27,844.89	29,417.31
Real Estate	16,326.76	67,868.14
Interest	145,159.63	168,830.22
Miscellaneous	6,965.72	7,663.57
	$4,736,006.66	$5,100,886.59
Expenses		
Expenses of Operation	332,996.05	378,272.89
Legal Expenses	74,603.69	87,767.28
Real Estate	29,062.72	35,666.19
Interest and Taxes	309,109.62	279,638.93
Commission	614,019.06	648,689.25
Royalty	10,000.00	10,000.00
Concessions	239,395.62	246,914.53
Miscellaneous		2,262.74
	$1,609,186.76	$1,689,211.81
Net Earnings	$3,126,819.90	$3,411,674.78
Surplus Account, Dec. 31, 1891	$2,151,011.61	
Net Earnings 1892	3,411,674.78	
		$5,562,686.39
Regular Dividends, 1892	$1,927,227.00	
Extra Dividends, 1892	991,863.00	
Reserve for General Depreciation	400,000.00	
Reserve for Depreciation of Insts.	92,584.78	
		$3,411,674.78
Surplus Account, Dec. 31, 1892		$2,151,011.61

*No portion of the earnings of the Metropolitan Telephone and Telegraph Company were divided. (p. 17.)

It is now possible from this room, or from any properly appointed station on this system, to talk north and east to Augusta, north to Concord, N. H., to Buffalo, N. Y., west to Chicago and south to Washington, and of course, to the principal cities intermediate.

In the Eastern States connecting lines already reached all important points. As said, a spur has been built to Detroit by way of Toledo. A line had previously been built from Chicago to Milwaukee. Through these branches and through contemplated connecting lines of local companies, all important points in Ohio, Indiana, Illinois, Michigan and Wisconsin as well, will soon be reached.

It may be interesting to note that within that territory live and do business something more than one-half of the whole population of the United States, so that soon it will not be a figure of speech to say that one-half of the population of the country are within talking distance of each other.

1893

That this system of telephonic intercommunication, so built up, is by far the most extensive in the world, is beyond question. There is, of course, nothing that yet approaches in length the line from Boston to Chicago; and it is generally admitted that the standard of service which has been set, and the extent of the use which is made, are also without parallel. (pp. 10-11.)

And of the efforts to give service of a high quality, and to maintain the efficiency of the plant and its working, Mr. Preece, electrician and engineer of the British Post-Office Telegraph, in a recent address before the Institution of Electrical Engineers in London, said:

> "The working is excellent, and they are alive to the necessity of maintaining its efficiency at the very highest point. Education is complete, not only of the staff, but of the customer. The apparatus itself is being perfected. Uniformity of practice is being introduced under the operation of the paternal control at Boston, and the influence of technical education is being felt everywhere."
>
> "In trunk working, whether for inter-exchange communication or for long distance working." Mr. Preece added, "they (in America) are far ahead of us in England; * * * the trunk working is wonderfully well done." (p. 12.)

Large as the expenditures mentioned above have been, the necessity of further capital expenditures for the extension of the business has not yet passed by. Indeed, at the point to which the business has now come, we have to consider, not a series of isolated exchanges or a number of scattered lines, but something very like a national exchange is showing itself. The pressure is great to extend the scheme of long lines to the West and to the South. There is of course much to do in the filling up of existing lines, and the local companies will have much to do to meet the extensions of the business. In view of this, as the limit of capital had been reached, your directors have caused application to be made to the Legislature at its present session for authority to increase the capital to fifty millions of dollars.

The money is wanted, not only to perfect the long lines already built, for which it will be remembered the last increase was chiefly made, but to develop and extend the sys-

tem to all paying points throughout the United States as fast as the public demands it. This would involve an outlay of many millions, the whole of which will fall upon this company. The expenditure on long lines alone already amounts to between $6,000,000 and $7,000,000.

The effect of the long lines already has been to work a vast improvement in the local service through the efforts of the local companies to give their subscribers the benefit of the long distance service. The local plants have largely been changed over into the new order of things, but that work must be completed and provisions made for a very large development of business.

A great outlay will be required for this also, and while the expenses will in part be borne by other stockholders in local companies, the American Bell Telephone Company, as a large stockholder in them, must, of course, bear a large part.

It should be understood that it is not proposed to issue any part of this stock except as needed for the development of the business.

The second Bell patent, that numbered 186,787, dated January 30, 1877, expired on the 30th of January last, and magneto receiving telephones are no longer covered by patent. We continue to furnish magneto receivers to our licensees under the contracts between them and us, but the loss of royalty from this source will result in a considerable reduction in our revenue. (pp. 13-15.)

During the year a reorganization of the engineers' department has been determined upon, and partly carried out. It has been decided to unite with it the mechanical department, thereby much enlarging the scope of the work of the later department and conducing to the ease of the work of both departments. Mr. Hayes has been appointed electrical engineer, under Mr. Davis, our chief engineer. The work of the department has been very considerable in examining and advising upon projects for altering, extending, or otherwise improving the buildings, the equipment, and the plants of the company's licensees, and in giving personal assistance when desired while such work was in progress. Plans, specifications, and estimates have also been made in new underground systems where none before existed, and in extending the underground systems already existing in other cities.

The advantage of uniformity in the form of apparatus used, in the mode of working, the details of construction, and

the various methods of operation that are thereby introduced, are highly and extremely beneficial. There is in effect but a single system, and the result tends much to the thorough and perfect performance of the service. It needs not to be added that we have the licensees' hearty co-operation in carrying out this work.

The work and the usefulness of the patent department grow year by year, with the advance in electrical knowledge and electrical invention. The demands made upon it by our licensees also steadily increase. (pp. 16-17.)

The companies which are operating the telephone business have long seen that the business man in this country, to whom the use of the telephone is so important a factor in the conduct of his affairs, wants the best and the most extended service that means and skill can provide, and their efforts have been steadily directed not only to extending the reach of the service, but to improving in every way its quality and its character. To accomplish these ends, construction and equipment of the most costly nature are required, as well as the employment of the most competent men in all departments. The proportions which the telephone work has assumed are shown by the fact that the telephone companies operating under license from this company have, during the past nine years, 1885-1893, expended forty-two millions of dollars, within a few thousand, upon the extension and betterment of their plant.

1894

EARNINGS

	1893	1894
Rental of Telephones	$3,513,711.42	$2,502,992.17
Dividends	* 1,824,431.98	* 1,937,657.77

*No portion of the earnings of the Metropolitan Telephone and Telegraph Company were divided. (p. 15.)

1895

The effect of this policy, which this company has consistently encouraged and promoted, is seen in the enormous development of the telephone use in this country as comapred with others. (pp. 12-13.)

In all there are 29 companies reached whose systems furnish our long line terminals. These companies report a total of 201,987 stations, of which 78,755 (38.99 per cent) are connected by metallic circuit. And of these 78,755 stations, 20,173 are equipped with long distance cabinet sets. (p. 14.)

EARNINGS—1895.

Rental	$2,125,359.05
Dividends	2,523,149.61

(p. 15.)

During the year the companies leasing our instruments expended for new construction, $6,463,000; for addition to real estate, $465,000; and for repair and reconstruction, $7,223,000; making a total of $14,151,000 applied to extension and care of the telephone plant in the United States.

Expenditure upon this scale has now been going on for many successive years, and has resulted, not alone in the building up of a very extended telephone system, but in bringing that system, throughout the country as a whole, to a high state of efficiency.

The principal cities and towns through most of the states east of the Mississippi are now connected by wire, and conversation can be held by telephone over distances of fifteen hundred miles, which is more than twice the length of line anywhere brought into use for this purpose outside the United States.

To make this communication possible, not only have the long lines to be constructed of heavy material and in the most thorough manner, but terminal connections and equipment must be built and maintained at a correspondingly high standard, and the details of management and operation must be in the hands of competent and highly trained employees.

The boards of direction of the numerous companies operating under our patents have been fully alive to the fact that telephone subscribers, in the great cities and the lesser, require a service instant at their call and thoroughly effective

for the transaction of business, whether to points near at hand or hundreds of miles distant.

We believe there is no room for doubt that the policy which has quite generally been pursued in this country, of building up a system substantial in its construction, effective in operation, quick to adopt improvements of method or inventive device tending to advance the standard of service and invite more extended use of its facilities, has provided for the requirements of the American people a service effective to a degree not elsewhere attained. Within the last five years alone, 130,000 miles of telephone wire have been placed underground, and cost has not been spared in any direction, which would tend to better results in service.

1896.

In all there are 32 companies reached whose systems furnish our long line terminals. These companies report a total of 259,198 stations, of which 105,091 (40.54 per cent) are connected by metallic circuit. And of these 105,091 stations 21,452 are equipped with long distance cabinet sets.

The importance, not only to the business of the companies, but to the general business interests of the country, of this rapid extension of the lines can hardly be overestimated.

Isolated exchanges are steadily becoming less in number. The great system of interconnecting lines, linking together the smaller cities and towns, as well as the important commercial centres, has brought many millions of the people within the possibility of speech over long distances by telephone, and the subscriber of to-day, at most of the exchanges, finds himself not only furnished with the facilities for talking with others in the same locality, but able to command, almost on the instant, the service of lines, over which he may within the time allowed for a toll line conversation, hold a conversation of several hundred words with his correspondent at a distant point. (pp. 11-12.)

The United States still holds the leading place among the great nations of the world in the development and use of the telephone service. * * *

Recognition is due to the officers directing the operations of the numerous companies throughout the country, which make use of our instruments, for their able and unremitting efforts to develop the business upon the lines best calculated to make the telephone system an agent of great and increasing value to the commercial and industrial interests of the community. (pp. 11-12.)

1897

In part also, it is unquestionably due to the efforts of the operating companies to bring the service within the reach of the numerous class of those who have need for a limited use of the system, and have not felt justified in incurring the expense for an exclusive circuit and unlimited exchange service. (pp. 7-8.)

We note a steadily advancing standard in the quality of service furnished by the companies operating under our licenses. The greater part of the toll lines throughout the country have been made metallic circuits, and copper wire has been extensively used in the construction of new lines and to replace iron upon the older lines. With the improvement of toll lines, a higher grade of terminal equipment is fast being introduced, furnishing the subscriber better facilities for talking over long distances. (pp. 10-11.)

The output of telephones and the increase of the number of exchange subscribers reported by the companies operating under our licenses are unprecedented in the history of the business. In fact, the gain of exchange stations recorded for the past two years equals the aggregate gain of the six years which preceded. Almost the entire increase for the last year is made up of stations connected by metallic circuits.

Part of this growth may be attributed to the general enlargement of population and business throughout the country, the greater efficiency of the service, and the growing recognition of the telephone as a valuable agent for the transaction of business and a convenience of home life.

1898

In all there are 38 companies whose systems furnish our long line terminals. These companies report a total of 409,250 stations, of which 200,528 (48.96 per cent) are equipped with metallic circuits; and of these 200,528 stations, 25,158 are equipped with long distance cabinet sets. (p. 7.)

Our last annual report recorded an output of telephones, and an increase in the number of exchange stations reported by the companies operating under our licenses, greater than in any previous year; but the year which has just closed presents a record of even greater growth.

More than eighty thousand subscribers have been added, requiring one hundred and forty-six thousand miles of new exchange conductors, and the toll-line system has been increased by some sixty-one thousand miles of wire.

The number of exchange conversations for the year, computed from daily averages reported, has reached one billion two hundred and thirty-one millions.

This great development, while in part due to the increased business activity which has prevailed throughout the country, is at the same time largely the result of efforts on the part of the operating companies to bring the telephone within reach of more numerous classes of the community, by offering the lower rates for which party-line and measured service can be furnished.

It is due also to those having direction of the companies operating under our licenses, to say that their effort has been to meet the public requirement by keeping the service, as a whole, at a high standard of efficiency. It is a fact worthy of note that 251,000 exchange subscribers are now connected by metallic circuits, suitably equipped for long distance service. (pp. 8-9.)

1899

"Excerpts From Annual Reports of American Telephone & Telegraph Company for the Years 1899-1928."

The Long Distance Company had on the first of January, 1900, 12,006.83 miles of pole line and cable, and 150,380.39 miles of wire connecting 323 offices; a gain during the year of 1,927.78 miles of pole line and cables, 27,105.34 miles of wire and 38 offices. (p. 7.)

In all there are 39 companies whose systems furnish our long line terminals. These companies report a total of 557,979 stations, of which 311,129 (55.76 per cent) are equipped with metallic circuits; and of these 311,129 stations, 26,132 are equipped with long distance cabinet sets. (p. 7.)

The increase in number of subscribers has been more than double that of any previous year. While it is true that this has been due in some small part to the introduction in certain localities of unremunerative rates, to meet similar rates set up by competitors, it is believed that in the main the growth has been healthy and will be permanent, and that the undoubted advantages of a single service on the score of economy, of convenience and of ready connection with a great general system will soon come to be generally understood. (p. 7.)

A leading feature of the modern development of the business is the use of measured service in connection with metallic circuits. By far the larger number of subscribers have found that, among the numerous classes of such service now offered, they can advantageously make a selection, and this number is constantly and rapidly increasing. (p. 8.)

EARNINGS

	1898	1899
Rental of Instruments	$1,610,855.64	$1,714,526.54
Dividends (p. 12.)	3,239,406.58	3,809,504.02

The year just passed has been the most noteworthy of any in the history of the business, in respect to the development both of the exchange and toll line systems.

1900

The tables of mileage on page 5 include the Long Distance toll system owned and operated by this Company. This system consisted on the 1st of January, 1901, of 12,427.63 miles of pole line and cable, and 167,410.39 miles of wire, connecting 359 offices; a gain during the year of 420.80 miles of pole line and cable, 17,030 miles of wire, and 36 offices.

The following comparative statement shows the number of exchange stations of the companies with which the Long Distance lines directly connect, and which furnish the terminals of that system.

	Number of Stations	Connected by Metallic Circuit	
		Stations	Per cent
Jan. 1, 1900.....	557,979	311,129	55.76
Jan. 1, 1901.....	697,674	438,222	62.81
Increase ..... (p. 8.)	139,695	127,093	7.05

At the close of the year 1899, the property and business of the American Bell Telephone Company, except its holdings in the stock of this Company, were taken over by this Company. (p. 8.)

Most of the gain of exchange stations consists of those connected by metallic circuits. At the end of 1900 there were five hundred and thirty-eight thousand of that class, making an increase of one hundred and fifty-four thousand during the year.

It is doubtless true that, in certain localities, rates too low to cover current expenses and necessary allowance for renewal have been offered, to meet similar rates offered by competitors. We believe, however, such conditions cannot be lasting, and the growth throughout the country, as a whole, has been of a healthy and substantial character. (pp. 10-11.)

1901

The increase in the use of the Bell telephone is shown by the fact that, while in 1900 the daily average of toll connections was about 148,528, and that of exchange connections was about 5,668,986, the daily average in 1901 of toll connections was about 187,378, and of exchange connections about 7,531,761, the total of both toll and exchange connections in the latter year reaching 7,719,139 per day. (p. 1.)

That the system may be complete and of the greatest utility, it is necessary that as many persons as possible should be so connected to it as to be able to talk or be talked to by telephone. This is not only in the interest of the small user, but even more in that of the large user, whose advantage as a telephone subscriber is largely measured by the number of persons with whom he may be put into communication. It is the duty as well as for the interest of the Company, that proper facilities be supplied to the constantly increasing number seeking connection with the Bell System.

As a consequence of these outlays and of the great development of the plant, the value of the telephone service to the subscriber is largely increased. His service is better, and will continue to improve, and the number of those to whom he may talk, and the extent of territory over which he may talk, are substantially greater from year to year. At the end of 1901 there were nearly 900,000 telephone stations which could be connected to the Long Distance system, and consequently to each other; a gain of about 180,000 for the year. At the end of 1898 there were only about 400,000 which could be so connected. (pp. 6-7.)

Competition from telephone companies not associated with this Company has existed for several years, and is likely to continue in some places for some time to come. While it has in some localities affected the Licensees of this Company disadvantageously, by reducing, for a time at least, the number of their subscribers and forcing them to meet competitive rates that are not based upon a proper recognition of the cost of doing the business or an adequate appreciation of the amount that should be set aside from earnings for maintenance, reconstruction and depreciation, the consequences of the competition to the business as a whole, have not been of serious moment. The public in each community will determine for itself whether it is for its advantage that

there should be two telephone exchanges serving one body of people. It would seem as if but one conclusion on this point was possible.

In any event, the comprehensive character of the system of this Company and its Licensees, organized as the system is to afford uniform and adequate telephonic inter-communication throughout the country, and the intention and ability of the Company and its Licensees to give good service at fair rates, must insure the permanency and prosperity of their business in the future as in the past. (pp. 6-8.)

1902

The net output of telephones during the year was 624,714, making the total number in the hands of licensees 3,150,320. (p. 3.)

The expenditure for new construction, to supply the increasing demand of the public for telephone service, was larger than that of previous years, the proportion of increase bearing a close relation to that of the business before recited.

The total amount added to construction and real estate by all the companies constituting our system in the United States during the year 1902, was:—

For Exchanges	$26,014,800
For Toll Lines	8,282,900
For Land and Buildings	3,038,800
	$37,336,500

The amount added in 1900 was $31,619,100; in 1901, $31,005,400.

The expenditure by this Company in 1902 for the construction, equipment, and supplies required for its Long Distance lines was $3,379,982, making the total investment in Long Distance lines and equipment to the close of the year $22,496,191.

These figures show that the active development of the business which has been characteristic of recent years still continues, nor are there any signs of a diminution of the demands upon this company and its operating companies for increased construction to meet the call for telephone service throughout the United States. There is hardly a section of the country in which it can be said that the point has been reached at which the supply of telephone facilities equals the demand. During the past year the operating companies have made larger gains in their lists of subscribers than in any previous year, and, almost without exception, they look forward to a still greater increase in the near future. (pp. 4-5.)

The demand for additional toll lines, and the use of those already constructed, are greater than ever before. A striking illustration of the growth of the toll line business after it is established appears in the fact that the estimate for the coming year, merely for new circuits on the now existing long distance lines which are operated directly by this company,

calls for an amount equal to about ten per cent of the entire investment made to date by this company in its long distance plant. (p. 5.)

Large as has been the investment in the past of this company and the operating companies associated with it, it is clear that to fulfill the duty of giving to the country a complete and comprehensive system of telephonic transmission, there must be a constant extension of facilities, involving a corresponding increase in investment. It is even more true of the telephone business of this company and its associated companies than of any other like business, that the necessary facilities to cover the territory, which in our case is the whole country, must be supplied to the full extent required to meet the reasonable demands of the public. The users of telephones recognize the enormous advantage of a complete service such as is afforded by the Bell companies, and expect to pay a proper compensation for the same. There can be no room for doubt that whatever investment is necessary to enable the business to be done properly will receive an adequate return. (p. 5.)

An essential obligation on the part of this company and the operating companies with which it is associated is to use every effort to give to their patrons the best possible service. To do this the apparatus must be of the best design and quality, and must be installed under the most favorable conditions. More than that, the working force, including not only the telephone operators who come in direct contact with the public, but all those upon whom is imposed the duty of keeping the apparatus in order and of arranging with the public for its use, must be thoroughly trained, as well in the practical part of their work as in meeting and dealing properly with the public. (p. 6.)

There is no apparatus more complicated than that employed in telephony when organized on a large scale, and no conditions exist in which a failure to adopt and act upon a high standard, both of mechanism and of relations to the public is more incompatible with success. (p. 6.)

This company and its associated companies are devoting their energies not only to that great development which the public interest requires, and which is so essential to the prosperity of the telephone companies themselves, but also to perfection of apparatus, the discovery of improved methods of operation, and the training and discipline of employees. (p. 6.)

More of the wires in the larger towns have been placed under ground. At the present time about fifty-five per cent of the entire mileage of wires used for exchange service throughout the country is in underground conduits. To a greater extent every year the operating companies acquire land and erect buildings specially designed to meet the requirements of modern exchange operation, locating them at points from which the distribution of the wires can be most economically and effectively made.

The introduction of the modern form of switchboard in the place of the older forms has progressed steadily. New and more effective cables have been designed and put into use, and in all the details of the work one improvement after another has been adopted as soon as it appeared that the adoption would contribute to the improvement of the service.

During the past year, special efforts have been made to standardize the apparatus used throughout the country by this company and its operating companies, and to ensure that in all parts of the country the most efficient central office equipment, underground and toll lines, and subscribers' station apparatus were employed. Much attention has been given to methods of operating, and while perfection has not yet been attained, and probably can never be attained in so difficult an art as that of telephony, there is no doubt that the service of the Bell companies, both long distance and local, throughout the country, has very generally improved. Every effort will be made to improve it still further, both by the introduction of better apparatus and by the adoption of better methods of operating, to the intelligent study of which the best men available are devoting constant attention.

In the report of your directors for the year ending December 31, 1901, the following reference was made to the competition of telephone companies not associated with this company:—

"Competition from telephone companies not associated with this company has existed for several years, and is likely to continue in some places for some time to come. While it has in some localities affected the licenses of this company disadvantageously, by reducing, for a time at least, the number of their subscribers and forcing them to meet competitive rates that are not based upon a proper recognition of the cost of doing the business or an adequate appreciation of the amount that should be set aside from earnings for mainten-

ance, reconstruction and depreciation, the consequences of the competition to the business as a whole have not been of serious moment. The public in each community will determine for itself whether it is for its advantage that there should be two telephone exchanges serving one body of people. It would seem as if but one conclusion on this point was possible.

"In any event, the comprehensive character of the system of this company and its licensees, organized as the system is to afford uniform and adequate telephonic inter-communication throughout the country, and the intention and ability of the company and its licensees to give good service at fair rates, must insure the permanency and prosperity of their business in the future as in the past."

The developments of the past year confirm the views then expressed. (pp. 7-8.)

* * * Since that report was presented to the stockholders there has developed a recognition on the part of many of the competing telephone companies, particularly those which were in the business in such a way as to be forced to look the situation in the face, that the rates generally adopted by them were much too low. It was very largely because of the belief on the part of these competing companies that they could do business at rates which were in fact below the cost of supplying the service, that they succeeded in making their competition with our companies in some instances effective by offering to give service at abnormally low rates. Moreover, their apparent views as to what rates were remunerative were, as was but natural, accepted to some extent by the public. It is but reasonable to assume that, by reason of the admissions of many of the most prominent of these competing companies, based no longer upon the representations of promoters but upon their actual experience, the public will be educated to a recognition of what are proper and reasonable rates for telephone service; in which event our companies will be in a position to relieve themselves of what is substantially the only ill effect that has followed from competition, namely, the reduction in certain localities of the rates charged to subscribers to a point which allowed no profit, and in some cases involved a loss. (p. 8.)

"The public has also in some instances during the past year seriously considered the question whether or not there should be two telephone exchanges serving one community, and has come to the conclusion that a duplication of telephone service

was undesirable. We believe that this sentiment will grow, in which event it will be the fault of the Bell companies if their facilities, their service and their relations to the public are not such as to secure for them proper recognition. (p. 9.)

During the past year, by agreement between this company and the operating companies with which it has contracts, a new and simpler plan for determining the amounts to be paid this company as rental for telephones has been adopted, which plan involved a substantial reduction in the rentals paid to this company from and after January 1, 1902. This modification of the rental arrangement was clearly justified by the existing conditions. It is believed that it will work to the advantage, not only of the operating companies, but of this company. (p. 10.)

If this reduction in rentals had not been made, the amount carried to surplus on the books of this company for the year 1902 would have been substantially greater. (p. 10.)

EXCHANGES OF THE LICENSEE COMPANIES.

Total Stations:

Jan. 1, 1894	237,186
Jan. 1, 1895	243,432
Jan. 1, 1896	281,695
Jan. 1, 1897	325,244
Jan. 1, 1898	384,230
Jan. 1, 1899	465,180
Jan. 1, 1900	632,946
Jan. 1, 1901	800,880
Jan. 1, 1902	1,020,647
Jan. 1, 1903	1,277,983
Increase	257,336

(p. 15.)

LEDGER BALANCES, DEC. 31, 1902.

DEBTORS.

Construction, Equipment and Supplies	$22,496,191 76
Telephones	6,522,196 35
Real Estate	1,745,280 15
Stocks and Bonds	114,864,798 77
Patent Account	166,014 35
Machinery and Tools	48,126 58
Cash and Deposits	6,933,364 35
Bills and Accounts Receivable	15,528,621 24
American Bell Telephone Co.	22,110,400 00

CREDITORS.

Capital Stock	$114,946,500 00
Capital Instalments	11,172,472 00
Surplus	3,493,290 23
Bonds	28,000,000 00
Reserves	6,079,262 23
*Accounts Payable	8,078,168 84
Contingent	18,645,210 25
	$190,414,903 55 $190,414,903 55

WM. R. DRIVER, *Treasurer.*

*Of this amount, $1,976,312.25 is for the dividends payable Jan. 15, 1903, to stockholders of record Dec. 31, 1902. (p. 16.)

Comparative Statement of Earnings and Expenses.

EARNINGS.

	1901.	1902.
Dividends	$4,988,207 63	$6,023,523 20
Rental of Instruments	2,647,907 64	2,299,378 52
Telephone Traffic	3,533,446 74	4,199,708 59
Real Estate	36,680 16	56,030 54
Interest	399,579 26	698,816 48
Miscellaneous	995 51	
	$11,606,816 94	$13,277,457 33

EXPENSES.

Expenses of Administration	$ 772,424 30	$ 964,827 30
Legal Expenses	99,138 04	124,645 57
Interest and Taxes	1,276,595 20	1,970,947 99
Telephone Traffic	2,060,409 54	2,381,764 28
	$4,208,531 08	$5,442,185 14
Net Revenue	$7,398,285 86	$7,835,272 19
Dividends Paid	5,050,023 75	6,584,403 75
Balance	$2,348,262 11	$1,250,868 44
Carried to Reserves	$1,377,650 74	$ 522,246 71
Carried to Surplus	970,611 37	728,621 73
	$2,348,262 11	$1,250,868 44

Wm. R. Driver, *Treasurer.*

(p. 17.)

1903

* * * In view of the general business conditions of the country, the increase in the number of subscribers and in the amount of telephone business done, shows that the efforts of your Company and of the companies associated with it to give a service of substantial value, are appreciated by the public. The increase in gross and net revenue and in the amount carried to reserve and to surplus after the payment of interest and dividends, is a satisfactory indication that the investment that has been and should be made from year to year to build up a comprehensive telephone system that is adequate to the needs of the community will receive a proper return. (p. 5.)

In former reports to the stockholders the necessity for developing and extending the facilities of your Company to meet the demands of the public throughout the United States has been recognized and asserted. The history of each year emphasizes the soundness of this policy. Not only have the specific returns from such extensions proved to be adequate,, but the strength and earning capacity of the Company in all parts of the country are definitely increased by such development. No new toll lines are built, exchanges established, or telephones installed, without bringing in additional revenue from the construction already existing, as well as from the new construction. The conditions of modern business require communication over such large areas, and with so many people, that the public immediately responds when it has the opportunity of telephonic communication with new territory or with new subscribers; for the value of the service to users generally, largely increases with the extent of territory covered and the number with whom connections may be made. Your Company and its associated companies are in a position to supply the comprehensive service required, and a proper return for the investment will surely reward their efforts to meet the demand that is made upon them. The extent of development required will vary from time to time with general business conditions. But even when those conditions are least favorable, extension of telephone facilities will still be called for, in as much as each year a larger proportion of the community recognizes the importance of the telephone in social and business life, as is shown by the constantly increasing number of Bell telephones in proportion to population. (pp. 5-6.)

Equally important is the matter of good service. Our companies are thoroughly impressed with the necessity of maintaining the Bell service at the highest practicable standard, and every effort is made to produce this result. The constant and intelligent study of operating methods that has been going on from the beginning and the many successive improvements in apparatus, have resulted in a definite control of this problem, the effect of which is everywhere shown in improved service. The complicated equipment required to make it possible to establish intercommunication between any two of hundreds of thousands of telephone users has now been standardized to a large extent. Standard methods of operating have been devised and put into practice. The result is not only an increased efficiency and better service, but also marked economy in maintenance and operation. Improvements in cables and devices to be used in connection therewith, and greater engineering knowledge, have made it possible to develop underground construction to a constantly increasing extent, and the field for underground work is now believed to be capable of an ultimate extension beyond anything that seemed possible to the engineers a few years ago. This results in economy of operation and also, by reducing to a minimum the danger of accident to the outside construction, in an improvement in the service. It is safe to say that there is an element of permanency in the apparatus and equipment of to-day which did not characterize that in use a few years ago. The time will never come when further improvements may not be expected, both in methods of operating and in apparatus.. There is no doubt, however, that the telephone service has now been so far standardized in these respects as to be an a par with many industries that are much older and which have had the intelligent and careful study of experts for a far greater period of time. (pp. 6-7.)

The work of perfecting the Bell service is not complete; but in view of the zeal and inteligence with which it is being pushed throughout the country, there is every reason to expect that the high standard now definitely established, and already attained in many places, will characterize the service generally. (p. 7.)

This matter of maintenance and depreciation is constantly before the eyes of our companies. The system of accounts, which is practically uniform for all the Bell organizations, forces them fairly to face this expense from month to month and from year to year. Before there is any question of profits,

each company recognizes the necessity of reserving from its earnings such amounts as experience has shown to be adequate to keep its property in repair and replace it when worn out or destroyed. The sum properly to be charged varies to some extent in different parts of the country, on account of climatic conditions and the character of the plant employed, but the average allowance for maintenance of the Bell companies for the year 1903 was over thirty per cent. of their gross revenue. (pp. 8-9).

As was stated in the report to the stockholders for the year 1902, the competition to which our companies are subjected is embarrassing chiefly to the extent to which it leads the public to believe that service can be given at rates that are too low to permit good service and a reasonable profit. The situation is now more favorable than ever before in this regard, and will continue to improve as the competing companies and the public become more correctly informed as to the conditions of the business. On the whole, it seems every year less probable that competition will have any substantial effect upon the prosperity of the Bell companies. (p. 9.)

The developments of the past year also show that the feeling that it is better for the community that there should be one comprehensive system of telephonic communication instead of several, which was referred to in former reports, is clearly growing in all parts of the country. (p. 9.)

It is an interesting and significant fact that many telephone companies which have started exchanges and to some extent toll lines in various parts of the country, independently of the Bell companies but in territory which the Bell companies did not occupy, have by contract with our operating companies taken the Bell telephones and become connected with our system on terms favorable to both parties. There are now over one hundred and twenty thousand of such sublicensee stations connected with the lines and exchanges of the Bell companies, and the movement in that direction is gaining. (pp. 9-10.)

Generally speaking, the business of your Company and of the companies associated with it is on a sound basis and, with good management and a proper development to meet the demands, the continued prosperity of the Bell organization seems secured. (p. 10.)

The suit of the Western Union Telegraph Company against this Company, which has been pending since the year

1884, and which was decided in favor of this Company by Judge Lowell, sitting as Master, and by Judge Colt in the Circuit Court of the United States, has been decided adversely to this Company by the United States Court of Appeals for the First Circuit. (p. 10.)

The decision is to the effect that, under a technical reading of the contract made by the predecessor of this Company with the Western Union Telegraph Company and its associated companies in the year 1879, this Company may have to account to the Western Union Company for a certain percentage of some of the stocks and bonds which it received from its licensee companies prior to 1896, when the contract expired. (p. 10.)

Your Directors desire to express their appreciation of the zeal and intelligence with which the employees of this Company and the officers and employees of the operating companies are co-operating to bring about the best results in our busines. There is an excellent spirit throughout the organization and everywhere a harmony of effort and aspiration which is most satisfactory. (p. 11.)

COMPARATIVE STATEMENT OF EARNINGS AND EXPENSES.

EARNINGS.

	1902.	1903.
Dividends	$6,023,523 20	$7,802,833 63
Rental of Instruments	2,299,378 52	3,047,088 35
Telephone Traffic	4,199,708 59	4,888,158 34
Real Estate	56,030 54	73,332 15
Interest	698,816 48	734,219 92
	$13,277,457 33	$16,545,632 39

EXPENSES.

Expenses of Administration	$ 964,827 30	$ 962,297 84
Legal Expenses	124,645 57	95,564 60
Interest and Taxes	1,970,947 99	1,993,680 08
Telephone Traffic	2,381,764 28	2,929,424 78
	$5,442,185 14	$5,980,967 30
Net Revenue	$7,835,272 19	$10,564,665 09
Dividends Paid	6,584,403 75	8,619,150 75
Balance	$1,250,868 44	$1,945,514 34
Carried to Reserves	$522,246 71	$728,139 97
Carried to Surplus	728,621 73	1,217,374 37
	$1,250,868 44	$1,945,514 34

WM. R. DRIVER, *Treasurer.*

(p. 17.)

1904

The number of exchange stations at the end of the year operated by the companies which constitute our system was 1,799,633, an increase of $274,466. In addition to this number there were 167,213 exchange and toll stations operated by companies or associations under sublicense contracts and making use of our telephones. (p. 4.)

The efficiency of the operating companies is constantly improving. The work of construction, maintenance and operating is done better and with more economy each year as improved equipment and more intelligent methods of construction, maintenance and operation are devised and introduced into use. A spirit of loyalty and of devotion to the work pervades our entire organization throughout the country. (p. 5.)

Every year it becomes more clear that the prosperity of the company is and always must be based primarily upon its ability to give such service, both in extent and quality, as is required to meet the reasonable demands of the public. (p. 5.)

Every extension of the service brings in new subscribers and, what is of greater moment, increases the value of the service to those already connected. The demand for telephonic connection has spread throughout the entire country, so that to-day not only the smaller householders and business men, but even the isolated farmers in all parts of the country are coming to regard the telephone as a necessity. Its use on railroads, in factories, on steamships, and in other special environments is growing rapidly, and there is an enormous increase in the number of private branch exchanges in hotels, apartment houses and other large establishments where, by the use of the private branch exchange, the same telephones can be employed for intercommunication between the rooms or offices as well as to talk out upon the lines of the general system. (pp. 5-6.)

The experience of the Bell operating companies in meeting the greatly increased demand for telephone service which has characterized the last few years, and the trend of the business as a whole, afford definite assurance that the investment required for the extensions which must necessarily be made, in the interest of the Company and of the public, will bring an adequate financial return. (p. 6.)

It is gratifying to note that the service throughout the country is constantly improving, notwithstanding the enor-

mously greater difficulty in carrying on the business on its present large scale. This is due in part to improvements in physical plant and to the adoption of better operating and maintenance methods, but even more to the more definite recognition that a high standard of service must be attained and to the more intelligent and careful supervision of the plant and of the operating which has come with experience and with a higher aspiration for good service. (p. 6.)

Involved in the extension of the business, both from the point of view of the companies and of the public, is the establishment of such schemes of rates as will result in an adequate return to the operating companies and at the same time will make it possible to graduate the cost of the service to the varying requirement of the respective subscribers and therefore be alike fair to the large and small user. In no other business that serves the public are the difficulties of dealing with rates greater than in the telephone business, particularly in view of the fact that in no two localities is the investment or the cost of operating per station the same, and that, as communities increase in size, conditions arise which largely increase these costs. (pp. 6-7.)

The Bell companies are dealing with this question intelligently and on sound lines. By the adoption of measured service in places where it is applicable, and of different grade of service which can be supplied at varying prices to meet the requirements of different classes of telephone users, they are promoting the necessary extension of the service on a basis that is safe, and satisfactory both to the companies and to the public. As a fundamental principle the large user should pay to some extent in proportion to his use, while the smaller user should be offered a service adapted to his needs at a lower price. (p. 7.)

The number of subscribers to the Bell system is now practically a hundred per cent. greater than was the case three years ago. In almost every part of the country each subscriber is able to talk to twice as many stations, and through those stations to a very much larger number of people. Thus the value of the service to the user is constantly increasing, and its cost to the subscribers, in relation to its value, is constantly reduced. (p. 7.)

But little need be added to what has been said in former reports with reference to the effect of the operation of the so-called independent telephone companies upon the interests

of the Bell companies. The developements of the year 1904 have served only to confirm the view heretofore expressed, that their presence in the field in certain portions of the country is not a matter of substantial disadvantage to the interests of the Bell companies as a whole. In some cases their competition, particularly in view of the rates at which they undertook to supply service, and which they themselves, to a large extent, now publicly acknowledge to have been entirely inadequate, has undoubtedly operated as an embarrassment to the logical progress of the business and to that extent has interfered with its sound development, to the disadvantage, temporarily at least, of our interests, and clearly to the disadvantage of the public. It becomes more clear, however, every year that to enable the Bell companies to meet successfully such competition as may from time to time exist, it is only necessary for them to prosecute their affairs intelligently and with due regard to the public interest. The situation, as a whole, so far as this phase of the business is concerned, seems even more satisfactory than in former years. (pp. 10-11.)

It is to be observed that in many instances even aggressive competition has not substantially affected the sound application and development of the rates from time to time established by our companies as fair to them and to the public. (p. 11.)

The fact that your company and its allied companies constitute a national system extending throughout the country is, each year, more definitely recognized as entitling the Bell system as a public utility to a position which cannot be attained by rival organizations that are, relatively speaking, largely local in character. (p. 11.)

The number of telephone companies organized to operate independently of the Bell companies in rural districts and relatively small centers of population, and for the most part in places not at the time having the Bell service, which have concluded that it is for their interest to become a part of the Bell system, is constantly increasing, and their course in entering into contracts with the Bell companies, whereby they take our telephones and connect with toll lines of our system, is significant as showing the growing appreciation of the value of the Bell service. Such contracts are clearly for mutual advantage, as well as for the advantage of the community served, and are to be encouraged in the interest

of sound telephone development, wherever, by reason of the establishment of such relations, it becomes unnecessary for our companies to duplicate an existing plant. (pp. 11-12.)

On the 31st day of December, 1902, as appears from the admirable and complete bulletin of the Census Department relating to the telephone and telegraph industries of the United States, there were of the telephones classified as operated by independent companies, so called, 84,021, which were in fact Bell telephones used under contract with the Bell companies and as part of the Bell system. This number has grown so that on the 1st of January, 1905, there were, as above stated, 167,213 telephone stations of this class. There is every reason to believe that this sub-license business of the Bell companies will increase from year to year to the advantage of all concerned. (p. 12.)

Comparative Statement of Earnings and Expenses.

EARNINGS.

	1903	1904
Dividends	$7,802,833 63	$8,400,301 18
Rental of Instruments	3,047,088 35	3,438,605 34
Telephone Traffic	4,888,158 34	5,373,447 90
Real Estate	73,332 15	76,782 49
Interest	734,219 92	1,055,502 10
	$16,545,632 39	$18,346,639 21

EXPENSES.

Expenses of Administration	$ 962,297 84	$1,100,492 95
Legal Expenses	95,364 60	83,530 42
Interest and Taxes	1,993,689 08	2,670,083 61
Telephone Traffic	2,929,424 78	3,413,850 48
	$5,980,907 30	$7,270,957 46
Net Revenue	$10,564,665 09	11,275,701 75
Dividends Paid	8,619,150 75	9,799,117 50
Balance	$1,945,514 34	$1,476,584 25
Carried to Reserves	$ 728,139 97	$ 586,149 20
Carried to Surplus	1,217,374 37	890,435 05
	$1,945,514 34	$1,476,584 25

Wm. R. Driver, *Treasurer.*

(p. 19.)

1905

The number of exchange stations at the end of the year operated by the companies which constitute our system in the United States was 2,241,367, an increase of 441,734. In addition to this number there were 246,337 exchange and toll stations operated by so-called sub-licensees, namely, independent companies or associations under sub-license or connection contracts and making use of our telephones. Adding also our telephones employed for private-line purposes, our companies had a total of 2,528,715 stations as against 2,003,213 stations at the close of the previous year. (p. 4.)

The amount added to construction and real estate by all the companies, excluding sub-licensees, constituting our system in the United States during the year 1905, was: —

For Exchanges	$36,771,312
For Toll Lines	9,832,204
For Land and Building	4,177,390
	$50,780,906

(p. 4.)

The amount added in 1900 was $31,619,100; in 1901, $31,-05,400; in 1902, $37,336,500; in 1903, $35,268,700; and in 1904, $33,436,700; making the grand total of expenditure upon these properties during the six years $219,547,306. (p. 5.)

The growth of the business during the past year has been greater than ever before. There is no doubt that the business will continue to increase. The use of the telephone is extending more and more in every section of the country and in every class of the community. It is revolutionizing business methods and social relations to a substantial extent. (p. 5.)

The added experience of each year shows more clearly what are the specific requirements which must be met in order to make our telephone system as useful as possible. It is the effort of the Bell companies to adapt the service to the demands of large and small users, business and residence, in large and small cities, rural towns and country districts of various kinds, and to devise and introduce rate schemes that will fit the many and diverse conditions with which the companies are confronted. In pursuance of this policy, combinations of individual and party lines have been introduced;

special equipment has been devised for hotel, department store, apartment house, and private branch exchange service; prepayment coin boxes, public pay stations and special farmer and ranch line service have been provided, in each case with suitable rates adapted to the user and to the service. The enormous growth of the system during the past few years would have been impossible if the utmost attention had not been given to the differentiation required for such varied uses. Every year it becomes more clear how best to meet the needs of the public, and it is in large part because we are better able to fit the service to the varying requirements and thus broaden the field of use, that the demand for telephone service and the extent to which the service is used is increasing far beyond any increase that is due to the development of population or the expansion of business and social activity. Everything that makes the service of greater value, in and of itself accelerates the rate at which the business will grow, and outside of improvements in the service itself, which have been and are constantly effected, there is nothing which adds so much to the value of the service to those who employ it, as the increase in the number of subscribers and the extension of the service into every field. (pp. 5-6.)

The telephone itself, although it has been improved from time to time, was an extremely satisfactory instrument from a comparatively early date.

The great difficulty on the technical side of the business resided in the development of apparatus and methods which would render efficient that general inter-communication among telephone subscribers which characterizes the business. The improvements in apparatus and methods designed to bring about this vitally important result have been extraordinary in quality and number. By reason of them, not only is a service given, the extent and character of which could hardly have been deemed possible in the early days of the business, but there have been attained a permanency of equipment and a relative economy in construction and operation which are in striking contrast to the earlier conditions.

Only a comparatively few years ago the bulk of the exchange plant throughout the country was of a character which telephone experts now recognize to have been extremely crude as compared with present standards. From the beginning the business grew beyond expectation, but it was only when it had attained a substantial growth that the real nature of the

problems to be solved became so clear as to permit of the general application of what we know now to be sound and permanent methods of construction and development. (pp. 7-8.)

Since the very rapid increase in the business, which began in the last year of the nineteenth century, the art has so far developed as to create, to a large extent, conditions of definite stability. Apparatus of a permanent type has been devised and put into use; to a constantly greater degree, uniform and standard methods of engineering have been applied in all new work and in the reconstruction of old work; more effective methods of operation have been employed. Moreover, great progress has been made in the direction of systematic organization, proper inspection and supervision, and in the adoption of methods of accounting adapted to the complicated requirements of a business dealing with an infinite number of small units of service. (pp. 7-8.)

On the executive and business side there has been a development equally on right lines. It was and is a definite advantage that the control of an enterprise extending throughout the United States was not so definitely centralized as to prevent local initiative and an obligation on the part of competent men in each section of the country to grapple on the spot with the peculiar problems which each locality has developed. The country is covered by our associated operating companies, nearly forty in number, each having its own trained officials in every department, and its own Board of Directors, made up of men of standing in their respective communities who know and sympathize with the needs of those communities. In this way many of the great problems of the business, including the greatest of all problems, that of rates, which was discussed to some extent in our last annual report, have been studied and dealt with practically, by a large number of organizations, each in touch with the peculiar conditions of its own locality, but all so related as to give to each the benefit of the views and experience of the others. While many problems are still unsettled and new ones arise every year, great grogress has been made toward the establishment of sound views as to the way in which the business should be handled so as to give satisfactory service everywhere and to all classes in the community, at as reasonable rates as are consistent with the maintenance of good service and with the development of the business on safe lines. There is, every year, a better under-

standing on the part of our companies with the communities in which they respectively work, the companies appreciating more clearly the needs of those communities and the people recognizing that the companies are endeavoring to conduct a difficult public service on sound, fair and honest lines. (pp. 8-9.)

The plant is to a large extent stable and standard. Fifty-four and one-tenth per cent., in miles, of all the exchange wire in the country is now in cables underground; and in the very many places where for technical or economical reasons it is impossible to go underground with exchange circuits, overhead cable construction has taken the place of the open wires formerly in use, to the great advantage of the telephone companies and their subscribers, inasmuch as liability to injury by storms is reduced and the service greatly improved.

At the end of the year 1905, all except about twenty per cent. of the exchange wire in the Bell system was in cables, overhead or underground. (p. 9.)

The American Telephone and Telegraph Company is the central company of a great organization which is giving telephone service throughout the country. Much of the operation, namely, all that which is local in its character, is done through its associated companies, each of which controls a definite territory within which it supplies telephone service. The American company itself owns and operates a comprehensive system of long distance lines extending through and interconnecting the territories of the associated operating companies, which covers the United States from the Atlantic seaboard to and beyond Minneapolis, Omaha, Kansas City and the eastern portion of the Indian Territory. Its investment in these long distance lines is about $35,000,000. Aside from the long distance lines, its telephones which are leased to operating companies, and its real estate to the value of about $2,500,000, substantially all of its assets consist of securities of the associated companies.* These securities are carried on the company's books at a valuation that is distinctly conservative. To do its proportionate part, in the development of the business of those companies, the American Telephone and Telegraph Company sells and issues its own stock and bonds, investing the proceeds in stock, bonds and notes of the associated companies. (pp. 11-12.)

The funds thus paid by this company into the treasuries of the associated companies, together with those derived

from issues of stock to the other stockholders and from other purchasers of the securities of those companies, furnish the means to enable the associated companies to extend their properties, to construct and enlarge their exchanges, connect hundreds of thousands of new subscribers, and to build toll lines and erect buildings for the operation of central offices. (p. 12.)

Through this process, the issues of securities by the associated companies, to the extent of our purchase of those securities, reappear in the capitalization of this company, that is to say, each $1000 realized from the securities of the American Telephone and Telegraph Company which is paid over by it into the treasury of one of its associated companies appears again in the form of $1000 of the securities of the company into whose treasurey it is paid, and by which it is invested in plant. (p. 12.)

Briefly stated, practically all of the money paid into the treasury of this company by subscribers to our issues of stock or bonds, with the exception of that expended from year to year for our own long lines and telephones, passes into the treasuries of our associated companies, in exchange for their securities, and is by them expended exclusively upon construction and additions to the plant. (p. 12.)

In like manner the dividends of the associated companies, that are paid to our company, reappear in the dividends paid by our company to its stockholders. (p. 13.)

The average cost of operation per station throughout the system has also been substantially reduced from year to year, in part from the same causes that have brought about a reduction in the investment per station. (p. 14.)

It is largely because of this reduction in the cost of construction and of operation, that the Bell companies have everywhere been enabled to make such a marked reduction in their average rates during the past few years. The value of the service has been greatly increased by the addition to the system of a constantly increasing number of subscribers, many of whom were of the new classes to which the service has been extended and which required a relatively low rate.

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*In addition to its interest in the associated telephone companies, the American company holds stock in the Western Electric Company, which is a large manufacturer of telephone and other electrical apparatus and supplies. Outside of the United States, it is a holder of stocks and bonds in the Bell Telephone Company of Canada.

For a substantially more valuable and efficient service, small users are now actually paying less than ever before and the cost to large users per unit of service has been reduced to at least an equal degree. (pp. 14-15.)

At the present time, the reduction in cost of construction and operation is still continuing and the public everywhere is constantly getting the benefit of this reduction in a lowering of the average rate for telephone service throughout the country. It is the policy of all the companes so to adjust their rates from time to time, that, taking all things into consideration, the net earnings will afford only a fair return upon the investment, after providing proper reserves for depreciation and the natural contingencies of the business. (p. 15.)

In many portions of the country in which our business was unprofitable a few years ago, it is now in satisfactory condition, and there are but few companies of those which have had to face strenuous competition in which there are not definite indications of an improved condition. In some instances the recovery may be slow, but we believe that it is sure to come everywhere in a reasonable time. (p. 16.)

That the competition of two telephone companies, operating in the same field, is an economic mistake, from the standpoint both of the investor and the telephone-using public, is coming to be more and more fully recognized. (p. 16.)

The subscriber, to derive the greatest value from telephone service, should be enabled to connect with all subscribers in his exchange area. If there are two companies, the subscriber having considerable business interests finds it almost indispensable that he should be connected with both companies, at increased cost and inconvenience. Those who have the service of one company only cannot carry on conversation by telephone with the subscribers of the other company and have therefore no connection with a portion of the telephone using public. (p. 16.)

It is the duty of our companies to employ the best business methods, to adhere to their conservative capitalization, to continue their efforts to establish and maintain the highest practicable standards of efficiency, both in engineering and in operation, and to give to every portion of the public, as far as possible the class of service that it requires, and at the lowest rates consistent with a proper return upon the investment. It is in the public interest that this return shall be such

as will attract the capital that must be furnished from time to time for many years to come, in order to build up what the inhabitants of this country need, namely, a national telephone system in which, within the limits that are physically possible, every subscriber can be connected with every other subscriber throughout the land. (p. 18.)

There has been a growing disposition on the part of organizations of this class, as is evidenced by the large increase of the number of sublicensee stations, to adopt the use of Bell telephones and connect themselves with the systems of our companies. This is true, also, of a considerable number of companies which have operated in direct competition with the Bell exchanges.

In spite of the great progress that has been made in the past few years our work is not yet completed. We have still much to learn and many improvements to make before our business can be brought to the perfection for which we aim. The zeal and energy with which throughout the country, the executive officers, the engineers, the traffic men and others upon whom the future development of the service depends, are working for the results we hope to attain, afford every assurance that there will be continuous progress from year to year in the right direction, and we believe that our efforts to give the country such a telephone service as it requires is appreciated and will be more appreciated as time goes on. (p. 19.)

1906

The number of exchange stations at the end of the year operated by the companies which constitute our system in the United States was 2,727,289, an increase of 485,922. In addition to this number, there were 297,220 exchange and toll stations operated by so-called sub-licensees, namely, independent companies or associations under sub-license or connection contracts and making use of our telephones. Adding also our telephones employed for private-line purposes, our companies had a total of 3,068,833 stations as against 2,528,715 stations at the close of the previous year. (p. 4.)

The amount added to construction and real estate by all the companies, excluding sub-licensees, constituting our system in the United States during the year 1906, was:--

For Exchanges	$59,971,094
For Toll Lines	13,585,659
For Land and Buildings	5,810,196
	$79,366,949

The amount added in 1900 was $31,619,100; in 1901, $31,005,400; in 1902, $37,336,500; in 1903, $35,368,700; in 1904, $33,436,700; and in 1905, $50,780,906; making the grand total of expenditure upon these properties during the seven years $298,914,255.

During the year 1906, the amount expended for maintenance and reconstruction, independent of construction, by all the Bell telephone companies in the United States was $32,814,568. This amount came from the earnings of the properties, and was charged into the expenses of the year. As a result of these expenditures for maintenance and reconstruction, the plant of our companies is in a better condition than ever before. That plant could not at the present time be reproduced for a less sum than $70,000,000 in excess of its cost. The scrap value of the lead and copper in the lines and cables alone is not less, at present prices, than $80,000,000. Every year the plant becomes more permanent in character and of longer life. There is no reason to doubt that at the present time it is substantially of a type which need not be replaced until it is worn out. (pp. 4-5.)

The amount contributed by the American Telephone and Telegraph Company in 1906 by way of investment in its own long-distance plant ($5,642,000), in telephones ($1,737,000), in real estate ($330,000), and in the purchase of stock and bonds and in loans to its operating companies ($53,432,000), was in all $61,141,000, an addition of almost twenty-six per cent. to its entire investment up to January 1, 1906. (p. 5.)

This greatly increased investment was made with the view of lifting the entire business to a distinctly higher plane specifically and as compared with its competitors. Your Directors believe that the expenditure was wise and that, because of it, the position and business of the Bell companies were never so secure as at the present time. The controlling importance of our companies in the telephone field is even more marked than before, and there is hardly a district of any extent throughout the country in which their business is not supported by a satisfactory plant, a good organization and good service. (pp. 5-6.)

While even in these important phases of the business the situation required constant watching and there still remains much to be done, particularly in some places, the improvement, generally speaking, has been marked and constant. (p. 6.)

In the expenditures for construction during the past year, the Bell companies have proceeded more positively than ever before upon a definite theory which is believed to be that required to meet the conditions of the business as now known. They have built for the future as far as was consistent with sound economy. They have laid the foundations for the development that is sure to come and have not limited their construction to the business actually in sight. (p. 6.)

It is inherent in the nature of the business that when telephone buildings and central office equipment become inadequate, they can be enlarged, in many cases, only at an expense altogether out of proportion to the increased facilities gained by such an enlargement. In fact, it has not unfrequently happened that, because of the unexpected demands for service, it has been found necessary to abandon a building and central office equipment and start again from the beginning, with a new building and new apparatus, as the most economical way of meeting the situation. (p. 7.)

The improvement in cables, made within the past few years, has revolutionized the art of telephone line construc-

tion. Not only is it now possible to place in underground ducts, cables containing four hundred or even six hundred circuits, but a pole line the carrying capacity of which would have been exhausted by forty pairs of open wires, can carry six hundred pairs of wires in the form of cables. The old-fashioned exchange pole line rarely carried more than twenty pairs of open wires. When an open wire aerial line has reached the low limit of its carrying capacity, it must be taken down and a larger line built unless there is an opportunity for a new line, which frequently is not the case. In either event, there is a great waste as compared with a type of construction in which, by the use of cables, a given pole line may have a capacity many times as great. Sound economy has many times in the past year required the scrapping of all the wires on a pole line, cable being substituted for them, as the only way of securing the enlargement of facilities that was required, and not unfrequently it has been necessary to reconstruct the whole line as the cheapest way of securing the opportunity for growth that was required. (pp. 7-8.)

Now that it is certain that the business will develop on lines of reasonable profit to an extent much greater than even the most enthusiastic telephone man ventured to expect a few years ago, and cables for exchange distribution are made which are in all respects satisfactory vehicles of transmission, it would be the height of folly not to anticipate the certain extension of the business by providing facilities for future growth, when they can be most economically installed. (p. 8.)

These large increases in the number of subscribers, which were attended by an equally large increase in the demand for toll service, practically exhausted the plant of the Bell companies and involved rebuilding that plant to a large extent. The year 1906 has seen additions to construction which not only enabled the companies to take care of the 2,241,367 subscribers connected with the system on the first of January, 1906, and the nearly 500,000 added during the year 1906, but which resulted in plant conditions, based on scientific study, which will enable the growth of future years to be taken care of with an economy and efficiency due to the application of the most approved methods of work. Constant additions will have to be made to the plant, but they will largely be on predetermined lines, utilizing, extending and rounding out the systematic plant conditions that now exist.

The effort has been made to design buildings and provide central office equipment that will not be exhausted in a short time. Careful engineering studies have been made of nearly all the large cities in the country, open wires have been displaced to a large extent, and underground construction and aerial and underground cables have been installed that were not merely adequate for the growth then in sight, but for a substantially larger growth. The lines upon which increases of plant should be made have been laid out in advance, so as to fit into the work now done. (pp. 9-10.)

As an indication of the extent to which the companies have built for the future, attention is called to the fact that at the present time not less than $25,000,000 are invested in circuits in cable that are not yet in use, but all of which will soon be in service, and that pale and conduit facilities are now installed which will take care of a very large number of cables over and above those that now exist. (p. 11.)

Large expenditures will be required in the future, as in the past, to enable our companies to do the business that is forced upon them by the increasing demand for telephone service. It is the opinion of your Directors that the plant was never in better condition to meet the demand upon our companies, and that the additions to it which are surely necessary will not only result in a proper return, but will create an adequate revenue from a substantial portion of the plant that now exists which in the nature of the case has not yet been utilized. (p. 11.)

The extensive building for the future and the very high cost of labor and material during the past year have somewhat increased the cost per station added to the Bell system over the corresponding costs of 1905. The cost per mile of toll wire did not increase. (p. 11.)

There is no reason to question the validity of the statement made in the last Annual Report that the reduction in the cost of construction per unit, which has been so significant during the past few years, will continue to characterize the business as it develops. (pp. 11-12.)

As has been the case for many years, there are certain portions of the country in which the return from the business is not satisfactory. These are for the most part localities in which our companies had not been able to cover the field rapidly enough to supply the demand for telephone service,

and were, therefore, particularly exposed to competition. (p. 12.)

As stated in prior reports, the unintelligent views of our competitors as to what rates for service are possible have created conditions in the portions of the country to which reference is now made, under which neither they nor the Bell companies are getting proper returns for the service rendered. These conditions are sure to correct themselves in time, particularly as almost everywhere, except in some of the comparatively few places in which new promotion schemes are being exploited, our competitors have discovered their mistake and are as anxious to raise their rates as they formerly were to do business at a loss. We have now developed our plant, business and organization in most of these localities to such an extent as to have the situation in hand, and have now only to proceed on sound lines to establish such relations with the public as will enable us to secure a fair return for the service rendered. There are definite indications that the public in these localities appreciates the situation to a greater extent than ever before, and that it will ultimately co-operate to secure the adequate telephone service which it needs, by encouraging our companies to make the readjustment of rates that is necessary to enable us to give that service under fair conditions. (pp. 12-13.)

In by far the greater part of the country, rates are established and maintained with the approbation of the public, which permit the reasonable return required by the Bell companies to enable them to meet the demands of those who use the telephone. (p. 13.)

Considering the difficulties in telephone rate making, and the fact that even now there has not been sufficient experience with the constantly changing phases of the business to make it possible to establish rigid theories fitting all conditions, it is a satisfaction to find that the complaints made as to the rates of the Bell companies are comparatively few in number, and are generally based upon some special feature of the system employed in a particular locality, and not upon the scheme of rates as a whole. (p. 13.)

The so-called Independent telephone companies which are in competition with the Bell companies throughout the United States have, as far as can be learned, except in a few localities, made no relative gain. It is a matter of common notoriety that many of them recognize that their situation is unstable.

Comparatively few new Independent plants have been established in competition with the Bell during the past two years. A number of franchises for competing companies have been granted in various cities, but during the year 1906, and up to the present time in the year 1907, substantially no work has been done under any of the franchises in the more important places. The investors from whom Independent telephone promotors have secured money in the past, are apparently less inclined than formerly to make the advances required to install telephone exchanges under the very unfavorable conditions, among others the excessive cost of material and labor and the high rates for money, which now prevail. The known financial situation of some of the larger Independent enterprises undoubtedly also operates to check such investments.

In spite of the fact that during the past year a large portion of the time and energy of the executive officers of the Bell companies have been absorbed in construction work and in the extention of the plant and business, the character of the service throughout the country has undoubtedly improved. Effort is everywhere made to keep the service at a proper standard and to improve it. The time and thought of hundreds of engineers and traffic men is devoted, not only to applying the present methods of giving service as efficiently as possible, but to finding out, by careful and intelligent study, methods of operation and of handling the business that will lead constantly to better and more efficient service. Substantial progress has been made in this direction; and while the service in this country is conceded to be the best in the world, there is every reason to believe that it can and will be improved as the result of the comprehensive and intelligent efforts that are being made to that end. (pp. 13-14.)

Comparative Statement of Earnings and Expenses.

EARNINGS.

	1905.	1906.
Dividends	$8,897,879 95	$10,281,437 60
Rental of Instruments	3,896,151 27	4,518,990 66
Telephone Traffic	6,529,556 82	7,522,082 31
Real Estate	82,384 46	67,296 29
Interest	2,306,858 79	2,136,290 96
	$21,712,831 29	$24,526,097 82

EXPENSES.

Expenses of Administration	$1,313,586 32	$1,629,802 85
Interest and Taxes	3,578,681 86	5,288,413 95
Telephone Traffic	3,786,524 72	4,636,944 26
	$8,678,792 90	$11,555,161 06
Net Revnue	$13,034,038 39	$12,970,936 76
Dividends Paid	9,866,355 00	10,195,233 50
Balance	$3,167,683 39	$2,775,703 26
Carried to Reserves	$1,743,295 16	$1,773,736 62
Carried to Surplus	1,424,388 23	1,001,966 64
	$3,167,683 39	$2,775,703 26

Wm. R. Driver, *Treasurer.*

(p. 23.)

1907

The number of stations at the end of the year operated directly by the associated companies which constitute our system in the United States was 3,035,533, an increase of 308,244. In addition to this number there were 755,316 exchange and toll stations connnected to our system by our toll and long-distance lines, but operated by local, co-operative and rural independent companies or associations having sub-license or connection contracts. Adding also our telephones employed for private-line purposes, there was a total of 3,839,000 stations connected to the Bell system as against 3,070,660 stations at the close of the previous year, an increase of 768,340 stations. (pp. 3-4.)

The amount added in 1900 was $31,619,100; in 1901, $31,005,400; in 1902, $37,336,500; in 1903, $35,368,700; in 1904, $33,436,700; in 1905, $50,780,906; and in 1906, $79,366,949, making the grand total of expenditure upon these properties during the eight years $351,835,655. (p. 5.)

CONSTRUCTION FOR THE CURRENT YEAR.

Estimates of all the associated operating companies and of the American Telephone and Telegraph Company for all anticipated requirements for 1908 have been prepared, thoroughly studied and considered in connection with available resources. Maximum expenditure in each case has been agreed upon, which is well within the available resources. All who are responsible for the expenditures are working in entire accord with these agreements and understandings, and it is believed that the results will be well within the limits fixed. (p. 7.)

WESTERN ELECTRIC COMPANY.

The Western Electric Company desired to extend its relations with our company and the associated companies, and to cover with its operations the entire telephonic field, whether connected with the Bell system or not. At the same time it was thought that the management, which would remain the same, if brought into closer touch with the general organization of the Bell system, could avoid duplication of effort in electrical and mechanical development and in this way and by the concentration of the purchase and distribu-

tion of supplies effect greater efficiency and economy. (pp. 7-8.)

To this end contracts have been made with most of the Bell companies, and the contract between our company and the Western Electric Company has been modified in respect to the sale of telephones and telephonic apparatus. (p. 8.)

At the end of the year cash and cash assets exceeded the payables by about eighteen per cent. The quick assets including merchandise exceeded the payables more than two to one. The plant stands on the books at about $12,000,000, which is fifty-one per cent of the actual cost. (pp. 8-9.)

Selling Telephones.

The policy of our company in the past has been to lease telephones, and to allow the Western Electric Company to sell only apparatus to our licensees. Believing that the best interests of all would be advanced by the general use of standard telephonic apparatus, after consultation with and with the approval of our associated and licensed companies, we authorized the Western Electric Company to sell both telephones and telephonic apparatus to all applicants. While the time has been too short to show positively the effect of this policy, the indications are that the benefits direct and indirect will be large, particularly in the development of unoccupied territory in connection with the Bell system. * * * (p. 11.)

Rates and Rate Regulation.

The result of these conditions has been to create in the minds of the public, and of public bodies, misleading and mistaken ideas of the telephone business. It has encouraged attempts at regulation of rates and business on lines that if obligatory or persisted in would be ruinous. In controversies as to rates, the policy of our associated companies has been to make a complete and absolute showing of the conditions, cost and value of plant, cost and value of service, cost and necessity of proper maintenance, and the broad position is taken that neither our company nor the associated companies have anything to conceal or anything to apologize for. That the capitalization of all the companies is conservative, far within justifiable limits, and in the relation be-

tween the replacement value of the properties and the capitalization of the companies, unique. Fair rates, therefore, should be authorized or acquiesced in, for it is only by fair rates that good service to the public and permanent, healthy conditions can be created or maintained. With a full knowledge of all surrounding circumstances and conditions, it is believed that this would be fully acquiesced in by the public. (pp. 15-16.)

Fair rates would insure high-class plant and equipment maintained at a high state of efficiency, and would provide fair wages to employees, the highest paid for similar class of employment. Both of these are necessary to good service. (p. 16.)

Fair rates should give fair return on the investment, and promise fair return on new money needed. This is necessary to maintain the interest of the existing shareholders in the proper administration of the business, as well as to provide for the continually increasing public demand. (p. 16.)

Any revenue produced over and above such requirements and the proper reserve to provide for contingencies could be used for the benefit of the public, allowing the company to retain a part sufficient to stimulate the most efficient and economical management. It would be difficult, if not impossible, to get effective and economical management, such as would produce the best results for both the public and the shareholders, without recognizing this principle. (p. 16.)

It does not seem possible that there can be any question of the justice of this position. That being granted, the facts to be settled are:

Is the management honest and competent?

What is the investment?

Is the property represented by that investment maintained at a high standard?

What percentage of return does it show?

Is that a fair return?

Is it obtained by a reasonable distribution of gross charges?

If these questions are answered satisfactorily, there can be no basis for conflict between the company and the public, and the less the working conditions are made inflexible by legislative proscription, the better will be the solution of the constantly changing problems incident to a growing business. (p. 17.)

Competition.

The value of any exchange system is measured by the number of the members of any community that are connected with it. If there are two systems, neither of them serving all, important users must be connected with both systems. Connection with only one is of but partial value and cannot be satisfactory. Two exchange systems in the same community, each serving the same members, cannot be conceived of as a permanency, nor can the service in either be furnished at any material reduction because of the competition, if return on investment and proper maintenance are taken into account. Duplication of plant is a waste to the investor. Duplication of charges is a waste to the user. (p. 17.)

The advantages claimed for competition are lower rates and improved service. Exhaustive competition may temporarily produce either or both of these results, but, as before stated, this temporary gain is purchased by an excessive waste. Duplication of plant and operation cannot produce either result without exhaustive competition. Given the same management, the public must pay double rates for service, to meet double charges, on double capital, double operating expenses and double maintenance. In most cases of proposed competition an examination of the prospectus will show that, by some process, it is expected to make good a capitalization equal to at least two or three times the actual cost of the construction. The only benefits are to the promoter. (p. 18.)

Public Control.

It is contended that if there is to be no competition there should be public control.

It is not believed that there is any serious objection to such control, provided it is independent, intelligent, considerate, thorough and just, recognizing, as does the Interstate Commerce Commission in its report recently issued, that capital is entitled to its fair return, and good management or enterprise to its reward. (p. 18.)

What Is Fair Return on Capital?

With guaranteed or reasonably certain income, money can be obtained for any enterprise at moderate rates.

With uncertainty—owing to competition and opposition, possible or actual, or possible regulation of rates without proper investigation or consideration—a more or less speculative price must be paid.

Subject to these general rules, "locality" and existing general conditions will establish the rate. (pp. 18-19.)

"Toll" Line and "Long-Distance" Service.

Toll line and long-distance communications require, as in exchange connections, the exclusive use of a circuit, two wires, between two points for an interval of time, varying with the conditions; over the whole system the average "time interval" consumed in the completion of each communication is about seven and one-half minutes.

Direct service between two points with large demands for service is the least complicated; the average "time interval" of each communication lasts about three and one-half to five minutes. Between points of small demand, or between intermediate points on local lines, both complications and cost increase, and the average "time interval" is not less than five minutes each. Between points on side or branch lines, or distant points requiring combinations of circuits, or complicated and delicate auxiliary apparatus with many attendant operators, complications and cost increase rapidly, and the "time interval" taken for each communication varies from five or seven and one-half minutes to an indefinite period.

Cost is determined by the capital and maintenance charges of the plant and operating costs, divided by the average number of communications.

Cheap rates for service depend upon high average use of facilities.

High average is obtained ordinarily in public service by putting on higher pressure—crowding—or in some way rendering more than normal service through or over any given facilities during the limited periods of great demand.

It is by this means, and by this means only, that cheap service is rendered to the public.

Whatever inconvenience or discomfort there may be caused on one hand is compensated for by the reduced price charged for service.

In this particular, toll line or long-distance service is unique. In whatever way the circuit is made up, a certain "time interval" must be given exclusively to each communication, and to the communicating parties. No other communication can be crowded on that circuit during that "time interval."

Any "time interval" passed without being utilized is lost beyond recovery. A good average cannot be made by crowding two or more communications into the "time interval" of one, nor by putting on higher pressure to get more "time intervals" over the same circuit.

There are only a certain number of five-minute "time intervals" in each hour, or five-minute "spaces" on each clock. If you want more "time intervals" or more "spaces," you must take more hours or more clocks. In toll line business anything above the normal capacity of each circuit must be provided for by additional circuits.

Toll line or long-distance business requires the presence of the communicating parties; for that reason it is confined to the business or working hours of the day; and further, the greater part of this business is not only limited to those few hours when parties are most likely to be located at some particular place, but to that part of those few hours immediately after the general business of the day has developed. For this reason the greater part of the toll line or long-distance business is crowded into an exceedingly small part of the business day. The periods of great demand are short. The facilities provided are idle a great part of even the business hours. (pp. 22-23-24.)

Examination shows that about half the facilities are utilized to a fair part of the capacity during business hours only. All the rest are utilized only to a fractional part of the capacity at any time. If during certain hours the business as shown on these diagrams could be subjected to a half hour's delay, the facilities required could be reduced one-third at least.

Toll line or long-distance business is in the minds of the public similar to telegraphic message business. There is no comparison. Telegraphic circuits between points are at most one wire, on all trunk lines two to four circuits over one wire.

Telegrams are handed it, filed befor ean operator and despatched in order. In this way the business is distributed more uniformly over working hours, and during the night hours the lines are used for press messages, night messages, or for long-distance messages in transit. (p. 24.)

GENERAL.

The past year completes what may be called the thirtieth year of corporate organized work in the development of the Bell Telephone System. In the mind of Mr. Bell, the invention and its application had simultaneous growth. During the first year, such of the many 'imaginations' and ideas as to development as were demonstrably practical were assimilated and the business was established on the lines now followed which make our company with its associated companies a national system with millions of subscribers connected by millions of miles of circuit with local exchange systems, all bound into one large comprehensive system by the toll and long-distance lines with their 163,000 miles of poles and 1,664,000 miles of wire, the whole inter-dependent and inter-communicating, an aggregation or union impossible to destroy in detail, and impossible to reproduce as a whole. (pp. 27-28.)

Each year has seen some progress in annihilating distance and bringing people closer to each other. Thirty years more may bring about results which will be almost as astonishing as those of the past thirty years. To the public, this 'Bell System' furnishes facilities, in its 'universality' of service and connection, of infinite value to the business world, a service which could not be furnished by disassociated companies. (p. 28.)

The strength of the Bell system lies in this "universality." It affords facilities to the public beyond those possible on any other lines. It carries with it also the obligation to occupy and develop the whole field. The urban field was the first to receive attention and the development keeps pace with the demand. The semiurban and rural demand came later. This has been met both directly by the operating companies and indirectly through local, co-operative and rural combinations, under license from, and connected by toll lines with, our operating companies. The policy adopted during the year, of selling telephones and telephonic apparatus, has given fresh impetus to this line of development, which is now showing most gratifying results. (p. 28.)

This position of our company has been reached only by a large expenditure of capital, which is, however, fully represented by plant and property with an earning power that must be considered satisfactory. (p. 29.)

If this expenditure is but considered as the financing of thirty-five distinct companies occupying thirty-five distinct territories and is considered as so distributed, rather than as a whole, the aggregate does not seem formidable. In this focussing of capital there are distinct advantages in that the revenue is derived from so many and such varied sources, and that the success of our company lies not in the success of any one company but in the average of all. (p. 29.)

BALANCE SHEET, JANUARY 1, 1908.

1907.

ASSETS.

Stocks of Associated Companies	$202,338,100.95	
Bonds and other obligations of Associated Companies	71,066,696.61	
		$273,404,797.56
Telephones	$10,169,548.52	
Real Estate	3,493,583.25	
Long Distance Telephone Plant	41,621,174.65	
		55,284,306.42
Cash and Deposits	$13,490,602.52	
Temporary Cash Loans	5,285,782.50	
Short Term Notes	11,610,770.02	
		30,387,155.04
Accounts Receivable		9,573,385.84
Patents		277,937.35
Treasury Bonds		320,000.00
Treasury Stock		27,110,400.00
		$396,357,982.21

(p. 33.)

COMPARATIVE STATEMENT OF EARNINGS AND EXPENSES.

EARNINGS:	1906.	1907.
Dividends	$10,281,437 60	$11,805,166 81
Interest and other revenue from associated and licensed companies	6,477,154 78	9,307,023 72
Telephone Traffic (net)	2,705,138 05	3,901,653 93
Real Estate	67,296 29	162,228 49
Other Sources	178,126 84	433,598 31
	$19,709,153 56	$25,609,671 26
EXPENSES	1,851,466 19	2,130,381 16
NET EARNINGS	$17,857,687 37	$23,479,290 10
Deduct Interest	4,886,750 61	7,209,902 16
	$12,970,936 76	$16,269,387 94
Dividends Paid	10,195,233 50	10,943,644 00
Balance	$2,775,703 26	$5,325,743 94
Carried to Reserves	$1,773,736 62	$3,500,000 00
Carried to Surplus	1,001,966 64	1,825,743 94
	$2,775,703 26	$5,325,743 94

C. G. DUBOIS, *Comptroller.*

(p. 34.)

On January 1, 1908, there was one Bell Telephone Station to each 22 of the Total Population of the United States.

(back of cover.)

1908

AMERICAN TELEPHONE & TELEGRAPH COMPANY

OFFICERS FOR THE YEAR 1908

THEODORE N. VAIL.....*President*
EDWARD J. HALL.....*Vice-President*
BERNARD E. SUNNY.....*Vice-President*
CHARLES P. WARE.....*Vice-President*
WILLIAM R. DRIVER.....*Treasurer*
CHARLES EUSTIS HUBBARD.....*Secretary*

(p. 2.)

BELL SYSTEM IN THE UNITED STATES.

SUBSCRIBER STATIONS.

The number of stations at the end of the year operated directly by the associated companies which constitute our system in the United States was 3,215,245, an increase of 179,712. In addition to this number, there were 1,103,144 exchange and toll stations connected to our system by our toll and long-distance lines, but operated by local, co-operative and rural independent companies or associations having sub-license or connection contracts. Adding also our telephones employed for private line purposes, there was a total of 4,364,629 stations connected to the Bell system as against 3,839,000 stations at the close of the previous year, an increase of 525,629 stations. (p. 3.)

PERMANENCY OF PLANT.

There exists much understanding as to the permanent value of a modern telephone plant. Originally exchange plants were open wire construction, largely on house-top fixtures and to a certain extent on poles. The central offices were in leased buildings, seldom fireproof, the equipment was of various types and standards due to the rapid improvement or development then taking place. (p. 5.)

Now the central offices in all the principal centers and in many of the less important are in fireproof buildings built for the purpose and owned by the companies. (p. 5.)

From these offices radiate the underground conduits connecting the central offices with each other and the various districts of the exchange territory. Through these subways the wires are run in cables of copper wire, sheathed with lead covering. The extensions of these lines are open wire, generally copper, or aerial cables strung on pole lines of substantial construction. The various cities and exchange territories are connected by means of pole lines of substantial construction, on which are strung for the most part copper wires. As fast as improvements in transmission methods make it possible, underground construction for long-distance trunk lines is being done. There are now underground conduits and cables between New York and Philadelphia, Chicago and Milwaukee, and a substantial part of the way between New York and Boston. (pp. 5-6.)

Of the total mileage of exchange wires over 57 per cent is underground. Of the total value 84 per cent is copper and 16 per cent iron. Of toll wires 91 per cent is copper and only 9 per cent iron. (p. 6.)

All the subways and pole lines are built, with few exceptions, under franchises which are actually or in effect permanent; the larger pole lines for a considerable part are built over rights of way actually owned by the companies, which were acquired at a cost of some $8,000,000, and could not now be acquired at many times that outlay, if at all. (p. 6.)

The central office and sub-station equipment are uniform, and all of the highest standard. Each year shows a marked improvement in both durability and permanency of standard. (p. 6.)

Construction for the Current Year.

Estimates of all the associated operating companies and of the American Telephone and Telegraph Company for all anticipated requirements for 1909 have been prepared. Maximum expenditure in each case has been agreed upon, and all who are responsible for the expenditures are working in entire accord with these agreements and understandings, and it is believed that the results will be, as they were in 1908, well within the limits fixed. (p. 7.)

During the year the Western Electric Company decreased its indebtedness $6,225,000 and decreased its cash $1,194,000, making a net improvement of $5,031,000 for that company. (p. 8.)

The total improvement of our associate operating and manufacturing companies in the United States was thus over $10,000,000, bringing the current and floating indebtedness of all the associated companies well within the limits of current operations. (p. 8.)

The following statements will show the book value of plant, outstanding obligations existing against it, and the growth and financial condition of the associated companies. (p. 9.)

BELL TELEPHONE COMPANIES IN UNITED STATES. AMERICAN TELEPHONE AND TELEGRAPH COMPANY NOT INCLUDED.

COMPARISON OF EARNINGS AND EXPENSES, 1907 AND 1908.

(Duplications Excluded.)

WESTERN ELECTRIC COMPANY.

The business of the Western Electric Company, like that of all other manufacturing companies, has shown a shrinkage for the year—not entirely, however, from the same causes. (p. 13.)

The business of the Western Electric Company outside of that with the American Telephone and Telegraph Company and associated companies shows a slight increase over 1906—the year of the largest aggregate business of the company. (p. 13.)

The year's business would have shown a manufacturing profit sufficient to have provided for all charges if the company was expected to do only the amount of business equal to that done last year, but under an organization such as is necessary to care for the increasing business of the last five years and for the prospective business of the next five years, and after charging off even more than the usual depreciation, showed a loss. (p. 13.)

We, after careful consideration, thought it would be far cheaper to maintain in its entirety the organization than to undertake to reconstruct it, particularly when we take into account the very large surplus of the company on the books, and the much greater actual surplus. (p. 13.)

The latter part of the fiscal year ending December 1, 1908, showed a decided improvement and it is expected that the current year will be satisfactory to all. (p. 13.)

The work of moving the manufacturing department from Chicago to Hawthorne, Ill., is proceeding as rapidly as possible, and the real estate in Chicago is on the market for sale. This property, which showed on the books of the Company at $2,700,000, has been appraised by the Chicago Real Estate Board at $3,755,000, and offers have been made for part at more than the appraisement. (p. 13.)

The financial condition of the company was never better. Quoting from the annual report: (p. 13.)

"The quick assets (cash on hand and accounts and bills receivable) were $16,467,859 at December 1, 1908, or 43.5 per cent. more than all the payables (including current accounts) $11,477,033." (p. 14.)

FUTURE FINANCING.

As to future financing, it is believed that it will be possible to so organize that a great part, if not all, of our semi-urban and rural expenditures can be financed locally and a considerable part of all other financing. This will reduce the necessary demands on the American Telephone and Telegraph Company for current operations to an amount which can be very easily taken care of. (p. 15.)

The relations of the American Telephone and Telegraph Company and the associated companies are not generally understood. The American Telephone and Telegraph Company is primarily a holding company, holding stocks of the associated operating and manufacturing companies. As an operating company it owns and operates the long-distance lines, the lines that connect all the systems of the associated operating companies with each other. (p. 15.)

In addition to these two functions it assumes what might be termed the centralized general administrative functions of all the associated companies. (p. 16.)

The Bell system is one system telephonically inter-connected, inter-communicating and inter-dependent. This is such a system that any one of over 4,000,000 subscribers can talk with any other one within carrying power of the voice over wires, the only exception being that the Pacific Coast and the Middle Rocky Mountain region are not yet connected. (p. 16.)

This system was built up under this policy and its continuance as a system depends on the continuance of the policy.

In the telephone business development is continuous. As conditions enlarge and change, new methods develop. The whole business suggests changes and stimulates inventions, and opportunities for improvements are frequent. (p. 16.)

If each separate exchange or group of exchanges had not been assisted and directed in the development and introduction of these new ideas, methods and inventions, there would now be as many systems, as many methods of operating as there are separate companies. This would have made impossible the organization which now gives the Bell system that universality and preponderance on account of which no matter how many other systems may exist, every one of any commercial or social importance must have connection with the Bell system. (p. 16.)

The same generalization runs through many departments. The companies are so organized, or fast becoming so, that every department continues through the local administration to the central administration of the American Telephone and Telegraph Company. (p. 16.)

The American Telephone and Telegraph Company owns and maintains all telephones. It also owns either directly or through the Western Electric Company all patents. (pp. 16-17.)

It has a department which was organized at the very beginning of the business and has continued since, where is to be found practically everything known about inventions pertaining to the telephone or kindred subjects. Every new idea is there examined, and its value determined so far as the patent features are concerned. (p. 17.)

The Engineering Department takes all new ideas, suggestions and inventions, and studies, develops, and passes upon them. (p. 17.)

It has under continuous observation and study all traffic methods and troubles, improving or remedying them.

It studies all construction, present and future development or extension schemes, makes plans and specifications for the same, and gives when desired general supervision and advice. It has a corps of experts which, in addition to the above work, is at all times at the service of any or all of the separate companies. (p. 17.)

When it is considered that some of these questions involve the permanency, duration and usefulness of a telephone plant costing millions of dollars, and changes costing hundreds of

thousands, some idea of its importance can be formed. To give an illustration: one group of patents covering inventions which seemed likely to be useful and economical in the service was purchased by the company. These inventions were developed into operating apparatus and put into use. While this cost hundreds of thousands of dollars, placing it beyond the scope of one operating company, the saving already accomplished to the associated companies runs into the millions. (p. 17.)

A large staff has been and is continuously engaged in the consideration of disturbances arising from transmission and other lines carrying heavy currents, and in many cases that any telephone system can even exist in the vicinity of such lines is due to the constant and continued attention given this subject. (pp. 17-18.)

Every new trouble, and there are many, comes before this department. When settled there, it is settled for all. This has established a commercial, operating and plant practice not only for our own associated companies, but for others of high standing throughout the world. (p. 18.)

All devices or inventions submitted receive the most thorough and painstaking investigation and it is safe to say that there has yet been no instance where any invention, system or method, rejected by the Patent and Engineering Departments of the American Telephone and Telegraph Company has ever had any permanent success when used elsewhere. (p. 18.)

The Manufacturing Department creates and builds the equipment and apparatus which have been adopted. In this way throughout the whole grand system will be found standardization and uniformity. This is not any handicap on improvement or development of the art, for, on the contrary, every suggestion or idea, and there are many, has abundant opportunity to be tested, which would not be possible otherwise. No one of the companies could by itself maintain such an organization, and it would be fatal to any service to introduce or try out undeveloped ideas in actual service. (p. 18.)

In the Legal Department all the big and general questions are looked after. It forms a clearing house in all legal matters for all the legal departments of the separate companies to which assistance and advice are given on all questions of general scope. (p. 18.)

In the administration all questions which affect all companies, all questions between the associated companies, and

the general policy and the general policy and the general conduct of the business, are considered and close touch and relationship maintained with all parts of the system. Experts on every subject connected with this business are continually at work on old or new subjects and ready at call to go to the assistance of any of the companies. In short, the great work and substantially all the expense of the American Telephone and Telegraph Company are involved in this "Centralized General Administration," taking care of all those matters which are common to all companies, or which if taken care of by each company would mean multiplication of work, effort, expense without corresponding advantage or efficiency. (pp. 18-19.)

To sum up, quoting the words of the representative of a large stockholding interest in one of the associated companies: "The contract relation with the American Telephone and Telegraph Company is the biggest asset this company has." (p. 19.)

General.

In submitting this report, we wish to call your attention to two things which indicate the stability of the company and property. (p. 21.)

One is the wide dispersion and small average holding of the shares—including the shareholders in the associated and connected companies, there are over 70,000 shareholders in the Bell system. From January 1 to March 2, the date of bond conversion, the shareholders increased about one hundred per week. (p. 21.)

Another is the stability of the business, year after year shows an increase, no matter what the prevailing business conditions. There has, it is true, been a slight decline in the rate of increase in exchange earnings, and the toll line business has given some indication that conditions were not normal, but even in that there was an increase in earnings. (p. 21.)

This stability and the position that the Bell system holds is due very largely to the policy and conditions under which it was developed, not alone to the telephone. (p. 21.)

A telephone—without a connection at the other end of the line—is not even a toy or a scientific instrument. It is one of the most useless things in the world. Its value depends on the connection with the other telephone—and increases with the number of connections. (p. 21.)

The Bell system under an intelligent control and broad policy has developed until it has assimilated itself into and in fact become the nervous system of the business and social organization of the country. (p. 22.)

This is the result of the centralized general contral exercised by the company, the combination of all local systems into one combined system developed as a whole. (p. 22.)

Nor could the development have been made in any other way. If the business had been developed by different organizations—each absolutely independent of and unrelated to the others—each little system would have been independent and self-contained without benefit to any other. No one has use for two telephone connections if he can reach all with whom he desired connection through one. Through the development of the Bell system, the relation and benefit as a whole have been considered. The policy has been to bring together all units which contribute to the value of the whole. The demand for facilities is seldom found waiting in these days for the facilities to come. The demand is created by the existence of the facilities. This is particularly true of the telephone service. It took courage to build the first toll line—short as it was—and it took more to build the first long-distance line to Chicago. (p. 22.)

If in the early days the immediate and individual profit of the long-distance toll lines had been considered, it is doubtful if any would have been built. (p. 22.)

"There are no other countries where the telephone service occupies the same relation to the public. Elsewhere narrow control and a policy of restriction have prevented its full development. Whatever is good in those systems has been adopted from the practice in this country. (p. 22.)

There has been oftentimes comparison between the rates of this and other countries. The average rate of this country taking all classes of service and conditions into consideration is about the same as the average rate of all other countries. There may be no maximum rates in other countries equal to some in this country, but on the other hand, there is no such maximum value given. Cheapness is relative to value, not to price. Value in telephone service depends on development, extent of system, certainty and promptness. Promptness and certainty mean operators and facilities sufficient to meet the maximum demands. It means constant and close attention on the part of attendants, sufficient in number to immediately care for any of the many troubles inherent in everything connected with the service from both outside and inside, the troubles

which seems to develop and multiply with the development and increase of the business. Promptness and certainty in meeting maximum demands mean idle operators when the demand is less; it means a small average use of operators and facilities. (pp. 22-23.)

In any given time a certain possible use—number of connections or messages—expressed in units of service can be given by any fixed number of operators with certain given facilities. If in any given time these possible units of service are not availed of, they are lost—they pass away with the time. (p. 23.)

Promptness and certainty therefore mean that each message, connection or other unit of actual service availed of must bear the expense of a number of unused possible units not availed of. If, instead of the immediate or prompt service of this country, the service as it exists in most other countries were in vogue, the cost would be reduced, but to a much greater extent would the value be reduced. Delayed service—service which keeps a line of customers waiting, so that there need be no loss of units of service, would reduce to a minimum the number of operators and given facilities, and all that creates cost. (p. 23.)

Instead of waiting and idle operators and facilities, there would be waiting, idle and patient, customers. (p. 23.)

We do not think the American public desires this kind of service. (p. 24.)

During the year we have had many questions before the courts, state commissions and other public bodies. We have met them in spirit of absolute frankness and candor. The results have been on the whole satisfactory, and the treatment we have received has been fair and considerate, and we have found an evident desire to ascertain the real conditions and to meet them fairly. (p. 24.)

While during these discussions the anxiety of the officials of our companies has been keen, their attention distracted from the ordinary operations of business and the work and expense incurred in furnishing information and in attendance have been great, we believe that through this work and through our policy of publicity, our relations with the public are closer, the public mind is better informed, many erroneous impressions and opinions have been corrected, and that the public is beginning to recognize and admit—what the 'Bell system' as conducted by the American Telephone and Telegraph Company stands for to the community at large. (p. 24.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
BALANCE SHEET, DECEMBER 31, 1908.

ASSETS.

Stocks of Associated Companies	$235,729,305.60	
Bonds and other obligations of Associated Companies..	73,289,388.92	
		$309,018,694.52
Telephones	$ 9,599,137.26	
Real Estate	2,181,728.67	
Long Distance Telephone Plant	42,650,989.97	
		54,431,855.90
Cash and Deposits	$ 41,137,264.33	
Temporary Cash Loans	7,988,000.00	
Short Term Notes	3,277,466.52	
		52,402,730.85
Accounts Receivable		2,969,140.64
Treasury Stock		22,110,400.00
		$440,932,821.91

(p. 28.)

On January 1, 1909, there was one Bell Telephone Station to each 20 of the Total Population of the United States. (Back Cover, 1908.)

1909

OFFICERS.

B. E. Sunny and U. N. Bethell.....Vice-Presidents

There can be no boundaries to a telephone system as it now is understood and demanded. Every community is a centre from which the people desire communication in every direction, always with contiguous territory and often with distant points. (p. 8.)

Every exchange must be the centre of the system.

The following tables, showing the business in the United States treated as one system, giving the amount collected from the public and the amount paid in dividends and interest to the security holders, will be of interest. (p. 8)

The limit of the authorized capital with what is reserved against the conversion of the convertible bonds has almost been reached. The expansion of our business is continuous and probably will continue at least as fast as in the past. It is believed, however, that in the future, much of the financing can be done locally, thus relieving this company of the burden and strengthening the local associate company. (p. 12)

REARRANGEMENT OF TERRITORY.

Some effort has been, and is being, made to make a closer adjustment of the boundaries of our associated companies to the commercial or geographical boundaries. (p. 12.)

This has been completed during the past year in the Middle States by bringing together into the New York Telephone Company and the Bell Telephone Company of Pennsylvania the territory naturally belonging to each. In both cases this was accomplished by a virtual consolidation of the various companies operating in the territory, and in both cases the outstanding obligations after the consolidation showed a considerable reduction below the total outstanding obligations of the various companies combined. (p. 13.)

That the organization is probably the most effective that could be devised for the business as a whole, and certainly is the only one possible under all the existing conditions; (p. 13)

HISTORY AND DEVELOPMENT OF THE TELEPHONE SYSTEM.

In spite of repeated attempts to make known the real facts of the early history and evolution of the Bell system, there seems to be still much misunderstanding. (p. 15.)

At the risk of being prolix, and of repeating what has often been told, the history and evolution and development will be retold as briefly as possible. (p. 15.)

The telephone was first introduced to the public in 1876, and put to the first practical or commercial use in 1877. During that year was organized the first 'association' or 'company' to hold the patents. The first companies to systematically exploit the business were formed in 1878, one for New England, and one for the rest of the United States and Canada. These two companies succeeded to all the rights and property of the original association. The capital, $650,000, 6,500 shares at $100 par each, represented the patents, such rights and property as had resulted from the time and money expended up to the spring of 1878, and in addition $100,000 in cash. (p. 15.)

Early in 1879, these two companies were consolidated into one company, the National Bell Telephone Company, the first company to attain any prominence. (p. 15.)

The capital of this company was $850,000, 8,500 shares of $100 par value each. $650,000 in shares was given share for share for the stock of the two old companies and $200,000 in shares left in the treasury. The treasury stock was sold as the company required the money, *for the best price obtainable*. The $200,000 par yielded to the treasury $430,000 in cash, an average of $215 per share, the last 500 shares having been sold for $600 each. (p. 15.)

It was during the existence of this company that the permanent foundations were laid upon which is built the present comprehensive system. (p. 16.)

It was in the fall of 1879, that the settlement was made with the Western Union Telegraph Company which removed the most formidable and powerful competitor from the field.

It was during this period that those fancy flights in the prices of the stock took place, the $100 shares (of which there were only 8,500) being quoted at one time at $1,000. Few, if any, transactions took place however at this price or anything near it. The sale

of 500 shares of the treasury stock at $600 per share was probably about the best price at which any considerable transaction took place. (p. 16.)

The stock of this company was fairly well distributed among 338 holders, an average of about 25 shares each, twelve holding in lots of 200 shares or over an aggregate of 4,795 shares out of the 8,500 shares. (p. 16.)

At the highest quotation the total market value of all the shares of the company would have been $8,500,000. According to the popular belief, over twelve of the original investors have been credited with realizing, if not more, at least as much as this. (p. 16.)

No dividends were paid by this company.

The rapid increase in the business called for more capital. Early in 1880 the American Bell Telephone Company was organized and the business of the National Bell Telephone Company transferred to it. The shareholders of the National Bell Telephone Company were given for each share of their stock six shares of the new American Bell Telephone Company stock. 8,500 shares of the treasury stock were at the same time sold at par. (p. 16.)

At the close of 1880 there were 540 holders of the 59,500 shares, an average of 110 each. Twenty holders of 500 shares or over had in the aggregate 33,190 shares. This was the last year that a majority of the stock was closely held.

In 1881 the first dividend was paid. (p. 17.)

The American Bell Telephone Company continued the business until 1899, during which time the capital stock had increased from $5,950,000 to $25,886,300. The $25,886,300 capital was held by 6,961 shareholders. 62,649 shares were held by 61 shareholders in blocks of 500 shares or over, while the balance, 196,214 shares, was held by 6,900 holders. (p. 17.)

The increase in the stock had been sold for cash at various times, yielding the company more than enough in premium above par to offset the shares that had been issued for patents, inventions, and property of the National Bell Telephone Company. (p. 17.)

When the American Bell Telephone Company transferred its business to the American Telephone and Telegraph Company there had been over $28,000,000 actual cash paid into the treasury of the company by shareholders as against $25,886,300 capital outstanding. During the time no stock divi-

dend or dividend of surplus in cash to pay for stock issued was made. (p. 17.)

The market price of the American Bell Telephone Company shares during the year ranged above $200 a share. The company was paying 15 per cent dividends yearly. (p. 17.)

The demands of the business required much larger capital than could be provided under the corporate powers of the American Bell Telephone Company. The American Telephone and Telegraph Company, a company organized to operate the long-distance traffic, purchased the business in 1899. The consideration was cash, but in effect the shareholders of the American Bell Telephone Company received two shares of the American Telephone and Telegraph Company for each share held. The dividends were put on a 7½ per cent. basis and were increased in 1906 to 8 per cent., at which rate they still continue. (pp. 17-18.)

Since 1900 the stock of the American Telephone and Telegraph Company has been increased from time to time as the business called for money. At the close of 1909 there were in the hands of the public $256,475,300. (p. 18.)

So much of this stock as was not sold to the shareholders at par was sold for cash at a premium, the highest at $152 per share, or was issued in exchange for the convertible bonds at about $134 per share. None of the stock has been issued as a dividend, nor have any cash dividends been declared to meet payments for stock issues. (p. 18.)

At the close of 1909 the premiums thus received over the par of the outstanding share capital amounted to over $14,000,000. (p. 18.)

The original owners and promoters of the telephone were first of all business promoters. Their idea was to develop the business on broad lines. Whatever reward they expected or received was the legitimate reward following a legitimate development of a substantial and beneficial business. (p. 18.)

The Bell system was founded on the broad lines of "One System," "One Policy," "Universal Service," on the idea that no aggregation of isolated independent systems, not under common control, however well built or equipped, could give the public the service that the interdependent, intercommunicating, universal system could give. (p. 18.)

This is no recent or new idea or theory. It is co-existent with the business; in fact the thory was evolved and devel-

oped before the business, and the business has been developed on that theory. (p. 19.)

To develop the business it was first necessary to develop the "art". It was unique, nothing like it existed; the whole art of the practical application of electricity was new and undeveloped. (p. 19.)

To develop the business to the best advantage all the best in the way of instrumentalities, apparatus and methods must be controlled. Apparatus and methods at the start were crude, but new instrumentalities and new methods were suggested from daily association, practice and study. (p. 19.)

It was necessary to develop these, improve and reduce the useful to practice, and eliminate the worthless. For this purpose a staff of technical, electrical and mechanical operating experts must be gathered together and educated. To educate and assist these, to enable them to do intelligent work, avoid repetition and duplication, all that had gone before and all that was being done here and elsewhere must be known. For this purpose a bureau of research and information was formed. Patent and legal experts must be employed and educated to secure the advantage of this work and study, as well as to furnish protection in the use of the patents. (p. 19.)

A highly developed manufacturing organization under proper supervision and control was required to reduce to practical use these ideas and inventions, as well as to secure the standardization and uniformity of instruments and apparatus. (p. 19.)

To ascertain which were the best of the methods being evolved in field practice, to educate the others in the use of them, to assist generally in the development, and to bring about the standardization of operating practice and methods, a staff of traveling experts, observers and teachers was placed in the field. (pp. 19-20.)

It is necessary to the growing and constantly improving business that this work be continued. It is being done much more economically and far more effectively by his company than it could be done by the associated companies, and without expense to them except so far as it is covered by the miscalled "rental" of telephones. (p. 20.)

The preliminary work was certainly difficult enough. Add to that the necessity of educating a doubting, hesitating public who looked on the invention as little better than a toy, and some idea of the task can be formed.

In the promotion and exploitation of the business two methods were possible. (p. 20.)

One company covering the whole country. This would require a large executive and administrative staff in the field, and a large capital which, at the time, it was impossible to secure. Under this method, state organizations would also have been necessary to hold franchises. (p. 20.)

The other way was to enlist a large number of individual workers, each with some capital, large faith and expectation, with great capacity for work, who would cover the field and develop the business. (p. 20.)

To insure a common policy and central control, all licenses were issued for small units of territory under restricted terms, confining the business entirely within each territory. The parent company owned and furnished the telephones, had all reversionary interest or rights in the territory, and the right to connect the units with each other for the purpose of forming a universal intercommunicating telephone system. For this purpose the long-distance lines and other toll lines were built. Under these temporary licenses certain rentals, so-called, or royalties, were paid to the parent company for the use of the telephones and other inventions owned, and also as compensation for all the many other services rendered, as described above. When these licenses were made permanent and included all future as well as all existing inventions, and the right to the business within the units of territory, the parent company retained an interest in the business which was represented by a stock interest in each company. (pp. 20-21.)

These licenses called for a continued certain percentage of the stock of the company, but this right was soon waived by the parent company. (p. 21.)

Through purchases to defeat the attempts of hostile interests to get possession of some of our associated companies, through the necessity of financing the companies for the purpose of keeping up with the demands for development, and through the purchase of its pro-rata of new issues, the American Telephone and Telegraph Company acquired its large holdings. (p. 21.)

The book valuation of the American Telephone and Telegraph Company's interest in the share capital of the associated operating companies December 31st, 1909, was nearly $306,000,000; *of this only* $16,000,000 *was received through contract or for licenses.* The balance, $290,000,000 was ob-

tained under precisely the same conditions that shares have been received by the other shareholders. (p. 21.)

While the settlement with the Western Union Telegraph Company in 1879 removed from the field the most formidable and powerful competitor, it must not be concluded that the American Bell Telephone Company had the field to itself. The Bell system did not then, nor did it in any year or any time since the great value of the telephone to the world was established, have a monopoly of the business or anything approaching it. (pp. 21-22.)

Patents and inventions were necessary for defence, but were no protection against imitators.

Competition.

There is not, nor can there be, any competition between these local associated operating companies, as under the conditions under which they can use the instruments and inventions, they must operate entirely within their respective territories; nor can there be competition in the telephone exchange systems operating in the same territory such as exists between other public utilities, certainly not such as exists between two gas companies or even between a gas and an electric light company. (p. 22.)

The telephone system does not give you a "commodity" or a "product," or even a "service" except so far as it is service to make up a "path" or "line" or "highway" for personal communication with a party at some distant point. (p. 22.)

The value of a telephone system is measured by the possibility of reaching through its connections *anyone—at any possible place.* (p. 22.)

There can be said to be no limit to those with whom one may desire communication at some one time or other. Ordinarily your communications are confined to a certain few other subscribers; occasionally you may wish to reach certain others, but there are times when it is an absolute necessity to get a connection with some one possibly unthought of or unknown before, and the importance of this connection may be vital.

A purely *local* exchange has a certain value. (pp. 22-23.)

If it has, in addition to its local connections, a connection with outlying contiguous localities, it has a largely increased value.

If it is universal in its connections and intercommunication, it is indispensable to all those whose social or business relations are more than purely local. (p. 23.)

A telephone system which undertakes to meet the full requirements must cover with its exchanges and connecting lines the whole country. Any development which is comprehensive must cover some territory which is not, and may never become, profitable in itself but must be carried at the expense of the whole. *It must be a system that will afford communication with any one that may possibly be wanted, at any time.* To do this the system must offer a connection of some kind, and at such rates, as will correspond to the value of the system to *each* and *every* user. (p. 23.)

"Interdependence," "intercommunication," "universality" cannot be had with isolated systems under independent control, however well connected. They require the standardization of operating methods, plant facilities and equipment, and that complete harmony and co-operation of operating forces, that can only come through centralized or common control. (p. 23.)

There was a continued running fight in the courts and in the field. The fact that the Bell won every case in the courts availed it nothing except that it was credited with a monopoly which did not exist. (p. 23.)

The only time that the Bell Telephone was without a competitor was at the Centennial Exhibition of 1876. (p. 23.)

Wherever two systems exist, each has, with the exception of a percentage common to both, a different list of subscribers. Those of large and extended social or business connections must connect with both, while those who do not connect with both get only partial service—the same character of service offered by two street car lines, each having its tracks on and running through the principal main street of the town but each extending into and serving entirely different sections of the community. (p. 23.)

Offering a connection with a so-called competing exchange, having a list of subscribers either entirely or largely different, is offering a different service, except so far as as they connect the same subscribers, and there it is of no benefit, as either one would serve the purpose. Two exchanges, each with the same list of subscribers, cannot, in the nature of things, exist. One or the other would be unnecessary because a subscriber would be paying twice for the same service when

either exchange gave all that could be obtained from both. It would be like paying two fares each time you ride in a street car to maintain a parallel line, although you could ride in but one at a time. Competition of that character increases the cost to you. Competition is only of service when it reduces your cost or increases your service. (p. 24.)

Economy of Competition.

By reason of duplications, duplication of investment, duplication of operation, competition in telephone systems cannot, in the nature of things, produce economy in operation, and without economy there can be no reduced charges. (p. 24.)

With only one system, at once is eliminated the duplication of subscribers' lines—so also is eliminated the greater part of the unused and idle staff, equipment and plant, and with this are also eliminated capital investments, capital charges, operating salaries, plant maintenance and depreciation. That it contributes also to the comfort and convenience of the subscribers is in itself no small consideration. (p. 24.)

What Has Competition Done for the Public?

No one can dispute the fact that the Bell methods and system are the standard and have been accepted as the best the world over. (p. 24.)

Competition certainly had no effect on the Bell revenue, was of no benefit to the public, compelled all to pay two subscriptions instead of one for complete service, besides all the other disadvantages of dual exchange systems. (p. 25.)

In the New York City exchanges, apparatus and plant practically good as new to the value of over eight and one-half millions of dollars, have been discarded because new improvements had made them obsolete, nearly all between the years 1883 and 1902, and the same is relatively true of any exchange system. As methods, plant and apparatus became more fixed and permanent, methods of operating improved, operating expenses declined, and reductions in rates followed—not because of competition. (p. 25.)

These statements, statistics and diagrams should establish the claim already made that reduction in rates followed closely reduction in expenses, and that reduction in expenses

was the result of the broad policy of development and improvement, the policy of the Bell system from the beginning, and not forced upon it by competition (p. 29);

That competition in the telephone business is not a beneficial competition; and (p. 29)

That there is within the reach of every one needing it a connection with the Bell telephone system. (p. 29.)

Public utility companies have obligations and are responsible both to the public and to their shareholders. It is a responsibility with accountability. Prevent them from imposing upon the public with fictitious issues of securities, or with exactions on the public with which to pay dividends on those fictitious securities. (p. 35.)

As to their internal management, operating methods, leave something to their self-interest, to their responsibility with accountability; do not impose upon them such control as might force upon them new methods, new apparatus, new ideas which have not been tried out, which have not been put through the crucible of practical experience. Theories and new ideas will be welcomed by any progressive corporation for without them development would be stayed, but all that is improvement must come through a process of evolution, by the gradual elimination of the useless and adoption of the useful, through experimental application modified to existing conditions. (pp. 35-36.)

We believe that if there is to be control, there should be protection, and that beyond the lines set forth above, any control ceases to be control and becomes management or operation. We believe that management or operation by a body without any accountable responsibility would be prejudicial to the best interests of the service and of the public, and destructive of property and the rights we are supposed to possess. (p. 36.)

Our company has a vital interest in the proper solution of the telephone problem, and we believe that we are workng the problem out on the broad lines of the greatest benefit to the public as a whole. (p. 36.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
BALANCE SHEET, DECEMBER 31, 1909.

Assets.

Stocks of Associated Companies	$306,948,309.10	
Bonds of Associated Companies	3,527,000.00	
Capital Advances to Associated Companies	49,990,850.38	
		$360,466,159.48
Telephones	$ 10,510,702.91	
Real Estate	2,181,728.67	
Long Distance Telephone Plant	44,295,659.76	
		56,988,091.34
Cash and Deposits	19,654,016.04	
Temporary Cash Loans	11,418,000.00	
Short Term Notes	12,022,466.52	
		43,094,482.56
Special Demand Notes		26,775,000.00
Current Accounts Receivable		6,766,073.28
		$494,089,806.66

(p. 38.)

On January 1, 1910, there was one Bell Telephone Station to each 17 of the Total Population of the United States.

(back of cover.)

1910

OFFICERS.

U. N. Bethell and B. E. Sunny.....Vice-Presidents

CONSTRUCTION FOR THE CURRENT YEAR.

Estimates of all the associated operating companies and of the American Telephone and Telegraph Company for all new construction requirements in 1911 have been prepared. It is estimated that about $60,000,000 will be required for current additions to plant in 1911, of which amount some $30,000,000 will be provided by the existing and current resources of the companies. All who are responsible for these expenditures are working in complete understanding of these estimates and the limits set on their expenditures. (p. 5.)

DEPRECIATION.

The question of depreciation has been considered very critically and analytically during the past year, by commissions and other bodies, in connection with studies on the rate question. While a depreciation reserve was generally favored, there seemed to be a disposition to apply experience and theories, gleaned from other lines of business, to the telephone business. (p. 5.)

The telephone business is unique in that it supplies its own terminals, which are vast in number, are temporary in character, and call for a large investment, unique in that a very considerable part of its plant is of a rapidly deteriorating character. Underground conduits and cables and aerial cables are fast changing this, but in the outlying rural and semi-urban districts and for long-distance lines construction will always have to be overhead on poles. There is nothing analogous to it in industrial or public utility service except the telegraph. (p. 5.)

The entire disregard or underestimating of depreciation and future replacement, is the cause of nearly all the financial disasters that have occurred in the telephone business, and has been the common failing of newcomers in the telephone field from the beginning to the present time. (p. 5.)

Current repairs on new plant, even of the old time temporary character, were small; no surplus or reserve was provided; profits were apparently large, as were dividends. (p. 6.)

A false atmosphere of prosperity surrounded the business which was not dispelled until replacements of plant through decay or obsolescence became imperative; until the overhead gave way to the underground, until the individual board gave way to the multiple central office system, until central office energy supplanted the magneto system, until exacting construction requirements of long-distance speaking began, until expansion of business and extension into new fields, some unremunerative, were obligatory; until a condition existed where, to correct mistakes of the past, capital had to be expended without producing any corresponding increase in the revenue. (p. 6.)

The inevitable was in some cases postponed by excessive charges to construction account, but come in time, as it is found to come under such conditions. The apparent profits and dividends had been at the cost of the capital and, at the time of the greatest necessity, resources were at the lowest ebb. (p. 6.)

Ignorantly or wilfully, every cause but the right cause was blamed, and although the management had been in the hands of the outside interests, the Bell parent company was given the responsibility, had to carry the burden, and assume the work of reconstruction and rehabilitation. (p. 6.)

An illustration may make the necessity of depreciation reserve even clearer. If a carter or local expressman or hackman owning his own carriages, horses or motor cars, should consider as profit all revenue over and above his current expenses and costs of current repairs, and should spend it, saving nothing with which to replace his plant when worn out or damaged beyond repair, he would be called thriftless and improvident. He had enjoyed his capital, and had nothing upon which to raise more. (p. 6.)

The present policy of the Bell System is to provide against every probable contingency and to base the amount and extent of such provision on past experience—not on future expectations. It is conjectured that the future will show a decrease in the depreciation or reconstruction due to decay, wear and tear, and obsolescence. Changes—improvements—are going on as rapidly as in the past, but the general character of plant

and methods is assuming more permanency. The improvements are being evolved from, and are being grafted on to, the old system and methods. The disturbing and sometimes seemingly destructive conditions following the rapid development of which pressure power and transmission have been to a great measure overcome. (p. 7.)

All this has been made possible through the unremitting study and research of the staff of the Engineering and Experimental Departments of the Company, who by close attention, observation and study, anticipate and provide for all such contingencies and conditions as can possibly be anticipated or provided for in advance. (p. 7.)

Under these conditions there is small probability that any such causes as those which forced the wholesale reconstruction or rearrangement of plant in the past will again occur; it is, however, for the benefit of the public and of the corporation to have an ample reserve for any contingency which may happen. (p. 7.)

Local telephone service up to the present requirements cannot be furnished by isolated or individual companies, and facilities for general service must be so-extensive with speaking limits, so that it is imperative for any system which pretends to be comprehensive to meet, and meet promptly, all demands for service. Its public usefulness as well as corporate existence and prosperity make it imperative to meet the continuing demand for extension which sometimes seems almost overwhelming in its magnitude. (p. 7.)

The capital for this advance construction must be provided by and at the cost of the present, as was the advance construction of the past provided by and at the cost of the past. To the extent that advance construction reduces the cost of necessary plant and anticipates reconstruction and replacement, to that extent the capital charge to be borne by present and future is reduced and to that extent it immediately puts the depreciation reserve to its intended use. The criticism that any excess of reserve is at the cost of the present for the benefit of the future is true, but only to the extent that it may be found eventually to be in excess of actual requirements. In any case it would be no more than might rightly be considered an insurance against obsolescence which cannot be foreseen. (p. 8.)

BELL TELEPHONE SYSTEM IN UNITED STATES.

COMPARISON OF EARNINGS AND EXPENSES, 1909 AND 1910.

(All duplications, including interest, dividends and other payments to American Telephone and Telegraph Company by associated holding and operating companies, excluded.) (p. 11.)

This relation of the Western Electric Company with the Bell System not only eliminated the expense which such companies must incur in the establishment of their business, but also largely reduced the operating or continuing expenses. Its business was either for the Bell Companies, or came to it because of its relation to the Bell Companies. Its manufactured products were made upon advance orders or to fill regular and definite continuing demands. A relatively small merchandise stock had to be carried. (p. 14.)

There was no selling expense which, in the ordinary manufacturing business, absorbs such a large percentage of the manufacturing products. There were no bad debts. The capital of the company was small and the floating debt large—at times much larger than the capital. (p. 14.)

The growth had been so rapid that there had been no time to adjust the business to the changing conditions. It became apparent that some of these conditions must be changed for the permanent good of the company. (p. 14.)

The Western Electric Company occupies a unique position in the manufacturing business. It is in fact the manufacturing department of the Bell System. (p. 14.)

To develop efficiency in service it was necessary to control the evolution of apparatus as well as of methods of operation. To control the quality and style of apparatus, to control the improvements which suggested themselves in the course of, and were the outcome of the experimental work and the development and improvement studies and experiments, it was necessary for the Bell System to control the manufacture of equipment and apparatus. (p. 14.)

The present Western Electric Company was the outgrowth of this necessity. (p. 14.)

This relation created the business of the Western Electric Company. (p. 14.)

Before instituting any changes an offer was made to the outside shareholders of the Western Electric Company for

an exchange or sale of their stock to the American Telephone and Telegraph Company. The offer was considered a liberal one and was accepted by a very large majority of the smaller holders and by a majority of the total shareholdings not held by the American Company. (p. 15.)

A definite program of readjustment to new conditions was adopted and has been steadily pushed forward. (p. 15.)

Outside lines of manufacture which were not only unprofitable but were absorbing a very large proportion of the capital of the company have been abandoned and the company's energy and efforts concentrated on the manufacture and sale of telephonic apparatus and auxiliary supplies. (p. 15.)

The Hawthorne works have been enlarged and the Chicago City Clinton Street and Polk Street properties have been sold at a slight advance over their book values. The company's debt has been funded and it has ample working capital. (p. 15.)

The prices charged to the Bell System are lower than the prices charged to other telephone customers. In the year 1910 the rate of gross profit on sales to the Bell System was 7.5% less than on sales to such other customers. This difference was offset by the lower expense in selling to the Bell Companies. (p. 15.)

The relation between the Bell System and the Western Electric Company has the advantage of a ready made business, with none of the ordinary drawbacks and expenses and risks that other manufacturing companies have. Because of that relation, however, all investigations made as to the cost and expenses of the telephone business by public bodies include an investigation to ascertain whether or not the Bell System is getting, indirectly, abnormal profits through its manufacturing department by making excessive charges for apparatus and supplies. While all such investigations have, so far, ended satisfactorily, they bring into the discussion the profits of the company, its relations to public utilities, its profits, and the proportion of these profits which should be divided among the shareholders. (pp. 15-16.)

Everything indicates that the company can make satisfactory prices to the telephone companies for its products and maintain a 10 per cent dividend. This rate has been started and it is not believed that existing conditions or a conservative policy would justify more. (p. 16.)

The business of the American Telephone and Telegraph Company is largely, but by no means entirely that of a holding company. It is an operating company in that it exercises centralized administrative functions over the associated companies and owns and directly operates the long-distance lines, binding this company into one system. (p. 18.)

It is a developing and manufacturing company by reason of its control over the manufacturing of the Western Electric Company through the Experimental and Engineering Departments and its contract relations with and stock ownership in that company. (p. 18.)

To get a proper comprehension of the business of the company as a whole, the combined balance sheet and earnings statement on page 11 must be considered rather than the balance sheet and earnings statement of the American Telephone and Telegraph Company alone. (p. 19.)

The interest of the American Telephone and Telegraph Company in its associated operating companies is over 80 per cent., in addition to which it has its own earnings. The American Telephone and Telegraph Company's share of the surplus earnings of the Bell System is approximately 90 per cent., so that the showing of real interest to the security holders of American Telephone and Telegraph Company lies in the figures of the Bell System as a whole. (p. 19.)

Pensions and Savings.

During the year a great deal of attention has been given to some scheme for Pensions and Savings which would be of the greatest possible benefit and assistance to the employees, and if possible a substantial improvement on any scheme now in force. (p. 21.)

The problem is an intricate and complicated one and the solution not easy. (p. 21.)

At a conference of all the associated companies, it was agreed that any plan adopted by the American Telephone and Telegraph Company would also be adopted by them, making it comprehensive and covering the Bell System as a whole, so that all changes of employees between companies would not affect their Pensions or Savings benefits. (p. 21.)

In the meantime all cases which would come under Pensions or Savings plans will be acted upon individually by the com-

pany, so that in effect so far as the employees are concerned the delay does not postpone any benefit to them. (p. 21.)

There is no question but that the public are tired of dual telephone exchange systems, and that so fast as confidence in protection against the real or imaginary evils of monopoly increases, opposition against mergers will decrease. (p. 21.)

This condition can only be brought about by putting before the public the fullest and most detailed information as to the company, its policy and purposes. (p. 21.)

It is not only the right but the obligation of all individuals, or aggregations of individuals, who come before the public, to see that the public have full and correct information. (p. 22.)

The Bell System gained 740,027 subscribers last year. Of the total number of subscribers over 1,000,000 were new during the year. (p. 22.)

The American Telephone and Telegraph Company gained 4,558 shareholders last year. Of the total number of shareholders many more were new last year. (p. 22.)

The excuse for setting forth at great length the policy, facts, beliefs and desires of the Bell system and those administering it, even to the extent of repeating much that has already been said and explaining some things familiar to many, is to inform the new public, the new subscribers, and the new shareholders. (p. 22.)

Every fact that is stated is correct.

Every argument or reason is believed to be well founded and based on facts and is intended to be impartial.

The position of the Bell System is well known. (p. 22.)

It is believed that the telephone system should be universal, interdependent and intercommunicating affording opportunity for any subscriber of any exchange to communicate with any other subscriber of any other exchange within the limits of speaking distance, giving to every subscriber every possible additional facility for *annihilating time or distance by use of electrical transmission of intelligence or personal communication.* It is believed further, that this idea of universality can be broadened and applied to a *universal wire system* for the *electrical transmission of intelligence* (*written or personal communication*), from every one in every place to every one in every other place, a system as universal and as extensive as the highway system of the country which extends from every man's door to every other man's door. (pp. 22-23.)

It is not believed that this can be accomplished by separately controlled or distinct systems nor that there can be competition in the accepted sense of competition. (p. 23.)

It is believed that all this can be accomplished to the reasonable satisfaction of the public with its acquiescence, under such control and regulation as will afford the public much better service at less cost than any competition or government-owned monopoly could permanently afford and at the same time be self-sustaining. (p. 23.)

The Bell System as at present constituted was evolved first through the local exchange. (p. 23.)

In the beginning of the business it was impossible to get the necessary capital for development in any large amount. In the place of large capital, small capital and the optimism of individuals had to be utilized. Small capital, large hopes and individual effort brought about a development by limiting the size of the exchange territory given to each individual to his possibilities. In this way the country and smaller cities were largely developed before much was done in the larger cities. The capital to develop New York was estimated at less than $100,000, yet it was a long time before even that could be raised. Even if it had been possible to raise capital to exploit the whole country through one company it would have been impossible to use it properly. The business was new. Those who constructed and operated it had to be educated. The policy of small units and individual effort, with concentration, application and resourcefulness brought a more rapid development and education than could have been had in any other way. (pp. 23-24.)

In this formative period, when the business was new, before distant speaking possibilities were shown, all communication was local. No two exchanges were either equipped or operated on the same lines or under the same methods, nor did they need to be; service, judged by present standards, was poor, but satisfied the local use; better service was not known. Later development of the toll line, of lines connecting exchanges, and of long-distance service made the deficiencies of the service glaring and the necessity of improvement imperative. (p. 24.)

It will be remembered by many when the long distance service was first introduced special connections had to be built for the users; now every telephone station or line can be equally well used for long-distance speaking. (p. 24.)

With the extension of the speaking limits of the telephone over connecting lines came also the necessity for the extension of the territorial limits of the exchange systems, the necessity of standardization, uniformity of apparatus and operating methods, and an effective common control over all. The necessity for system was the beginning of the Bell System. The combination of the separate exchanges and lines into larger aggregations or organizations followed. It was necessary to have more effective organization with more effective administration and management, and with resources sufficient to make the changes which experiment and experience had found necessary. (pp. 24-25.)

It is impossible to define the territorial limitations of a telephone system because from every exchange center communication is wanted up to the talking limits in every direction. (p. 25.)

This process of combination will continue until all telephone exchanges and lines will be merged either into one company owning and operating the whole system, or until a number of companies with territories determined by political, business or geographical conditions, each performing all functions pertaining to local management and operation will be closely associated under the control of one central organization exercising all the functions of centralized general administration. But whatever may be the form of the operating organization, there is bound to be for legal purposes and the holding of franchises, some sort of subordinate state organization which will bring the business and property in each locality under the jurisdiction of the state in which it is situated and operated. (p. 25.)

The American Telephone and Telegraph Company, which is the owner of all or part of each company forming the Bell System, is not simply a holding company. It is not a combination that has eliminated competition between the companies controlled by it. There can be no rivalry or competition between local exchanges in adjacent territory. Those desiring the service of exchanges in adjacent territory in addition to their own can get it much better and cheaper through their local exchange. To give direct individual wires from one exchange territory into another would be impractical from the multiplication of lines and prohibitive on account of cost. The American Telephone and Telegraph Company is a centralized general administration for all the companies. It does the

financing for the extension of the business. It furnishes the engineering, operating and other experts. It maintains a productive and protective organization so far as patents are concerned. It defends all the companies against all infringements. It undertakes to bring about improvements by working out the ideas and suggestions of others, both in and out of the business. Its agents keep each company fully informed of all that is going on in the field. It avoids all duplication of efforts, of experiments, of trial of new methods, apparatus, etc. It looks after the public relations of the companies. In other words, it performs all that service which is common to all, leaving to the local companies the local management. The organization is not unlike that of the United States, each local company occupying its own territory and performing all local functions, the American Telephone and Telegraph Company binding them all together with its long-distance lines and looking after all the relations between the local companies and between local companies and other companies. To have developed the telephone industry to its present state of efficiency would have been beyond the ability of any one of the local companies. (pp. 25-26.)

All independent systems which have been started have more or less followed the same lines, but within restricted areas, whether built by one company or interest, or by several. First, the local exchange, then the toll line to outlying points, and then the long-distance line connecting with other independent exchanges, tieing them together to form a system affording facilities for communication between the subscribers of one exchange, and the subscribers of the other, but limited in scope, and without the community of interest necessary to a common system. (p. 26.)

In other words we have the Bell System on the one side, developed on the lines of a universal, inter-communicating and inter-dependent service. We have the opposition on the other side, segregated exchanges or limited systems without universality, incomplete and inefficient, neither inter-dependent nor inter-communicating, except to a limited extent. (pp. 26-27.)

As before said, the purpose and object of an exchange is to afford a direct speaking circuit between parties at points distant from each other, to afford a highway for personal communication between any two. The exchange gives nothing but that connection, does nothing but provide that highway

of communication, and place it at the service of the two parties desiring to communicate. The actual communicating is done by the parties themselves over this circuit placed at their exclusive service for the time being. To get this service, however, both parties must be connected with the same system; if not, the telephone circuit between the two parties cannot be made. (p. 38.)

The fundamental idea of the Bell System is that the telephone service should be universal, intercommunicating and interdependent; that there are *certain people* with whom one *communicates frequently* and *regularly;* there are a certain few with whom one communicates occasionally, while there are times when it is most necessary to get communication with some other one, who, until the particular necessity arose, might have been unknown and unthought of. It is this necessity, impossible to predetermine, which makes the universal service the only perfect service. (p. 39.)

On the assumption that a perfect telephone system must afford this direct highway of communication between any two desiring to converse, this system must reach everyone; must be universal, comprehensive. To the extent that any system does not reach everyone it is not perfect; to the extent that any system does not reach everyone, it is not in competition with the one that does; and to the extent that both systems reach everyone it is merely duplication; it is not competition. (p. 39.)

Physical connection. What is meant by it? And what object is it intended to accomplish? (p. 40.)

Where there are two or more so-called competing local telephone exchanges in the same territory, each offers a particular service; each offers a connection with its particular list of subscribers. (p. 40.)

Physical connection would connect these separate exchanges by trunk lines the same as exchanges belonging to one system are connected. (p. 40.)

This in itself would be an easy matter in many cases, and would allow the subscriber to one local exchange speaking connection with the subscribers to the other local exchanges. A fairly satisfactory service could be given if all of the exchanges had the same general style of equipment, uniform operating methods, and if harmony and concert of action between the operators of entirely independent and rival exchanges could be assured. (pp. 40-41.)

But what has been accomplished? You have enabled any subscriber to any exchange to communicate with any subscriber to any other exchange. You have not avoided the objectionable duplication. You have not given service to all the exchanges for one subscription. This can only be done through merger or combination, not by physical connection. Physical connection implies separate and independent entities. For the privilege of this physical connection with the other exchanges the subscriber to any one of the exchanges must pay. This payment or toll must be more or less the equivalent of what the regular subscribers pay, otherwise there would be discrimination. (p. 41.)

If the equipment and the operating methods of the opposition or independent exchanges physically connected are different, the service is bound to be unsatisfactory. No one of the exchanges can have any control over the operators of the other exchanges. There is bound to be strife and contention between the operators, resulting in delays and poor service. Each exchange must necessarily give preference and attention to its own service. (p. 41.)

From the standpoint of local telephone exchange service, therefore, there can be nothing to gain from physical connection, either in economy or quality of service. (p. 41.)

The most important matter to consider in connection with physical connection, the one that has the greatest bearing on the subject, is the character of such physical connection between telephone exchanges, and wherein it differs from regular exchange of service or physical connection between other public utility companies. (p. 41.)

A telephone exchange does not furnish a commodity, does not transport goods, nor does it transmit messages. (p. 41.)

What the telephone exhange does, is to place at the disposition of any subscriber a telephone circuit, consisting of two wires, connecting such subscriber with another person at a distant point. This circuit enables them to carry on speaking communication with each other; it must be continuous and unbroken; it is for their exclusive use and while the circuit is at their service it cannot be used by any others desiring to communicate, or for any other telephone purpose. The employees of the exchange render no other service than selecting and connecting the wires together to form this circuit, and putting the parties in communication. To do this, and do it satisfactorily, the operators making up the circuit must have

absolute control of the wires necessary for these circuits over the whole distance between the points of communication; that is, the operator at the starting point must have either control of or perfect working unity and harmony of action with all the operators of all the trunk lines and exchange lines necessary for this circuit. (p. 42.)

These conditions can only exist where there is a strong, common interest or control. (p. 42.)

Physical connection between independent or opposition exchanges means, therefore, the placing of the wires necessary to give it effect out of the control for the time being of the owning company and under the control of a competing, opposition company, to enable that competing, opposition company to give its subscribers the use of property, equipment, facilities, operating staff, other than its own, and for the time being depriving the owning company and its subscribers of the use of such facilities. (p. 42.)

Physical connection demands exclusive use of an integral part of the property and facilities and operating staff of one company for the customers of a competing company, no matter how urgent may be the owner's necessity for the immediate use of such property and facilities, nor how small the surplus facilities beyond the owner's requirements. (p. 42.)

If the service consisted of carrying packages or transmitting messages along with other packages or other messages, or hauling cars to their destination, or accepting through tickets or transfers from connecting or cross lines of travel, it would be very different. In such cases the property, facilities and operation remain in the control of the owning company or its operating staff; no property intended for the benefit of the customers of one company is put to the exclusive use of another company; all that is done, is the same as is done with and for all comers. The package or passenger is carried, or the message transmitted, to its destination at the convenience of the company, along with other packages or messages. (p. 43).

So far we have considered only the local exchange. Physical connection between independent or opposition telephone systems or between an independent local exchange and a telephone system presents not only the same but many more complications, and is far more objectionable. (p. 43).

To better understand what is meant by physical connection and what it is meant to accomplish, a knowledge of the evolu-

tion and development and policy of the Bell System is necessary, and what that policy and belief is. (p. 43.)

Repeating what has been said above, it believes that the telephone system should be universal, interdependent and intercommunicating, affording opportunity for any subscriber to any exchange to communicate with any other subscriber of any other exchange within the limits of speaking distance, giving to every subscriber every possible additional facility for *annihilating time or distance by use of electrical transmission of intelligence or personal communication.* It believes that some sort of a connection with the telephone system should be within reach of all. (p. 43.)

This is what the Bell System aims to be—one system with common policy, common purpose and common action; comprehensive, universal, interdependent, intercommunicating; like the highway system of the country, extending from every door to every other door; affording *electrical communication of every* kind, from every one at every place to every one at every other place. (pp. 43-44.)

To create this system has been the policy of the Bell interests from the beginning. It is the only way by which a satisfactory telephone service—satisfactory to the public or profitable to its owners—can be maintained. (p. 44.)

The Bell System as established is as advanced and extended as the country as a whole will warrant. Its policy of extension carries it a little in advance of the public demands. In any effort to cover the whole country many unremunerative exchanges and toll lines have to be constructed and operated. Some of these will in time become remunerative; some never will, and those, for the benefit of the whole system, will have to be carried at the cost of the whole system. (p. 44.)

Most of the opposition exchanges have been built up in a selected territory with capital obtained by the promise of, or in anticipation of large profits; as a rule capitalized far in excess of the plant value or construction cost. Subscribers have been obtained by promises of improved service at low rates. Many of such exchanges owe what success they have, where there is any success, to personal local influence or interest. Many, if not all, have been a disappointment. The day of local telephone exchanges or limited telephone systems has gone. This is recognized and fully appreciated by those who have exploited or are operating them. (p. 44.)

The idea of physical connection is born of a desire to get for these local and isolated competing or opposition exchanges or these comparatively limited exchange systems, the advantage of the more extensive, comprehensive Bell System. To get for the subscribers of these so-called competing, opposition exchanges the connections which their own systems do not give them, to get for their subscribers all the advantages enjoyed by subscribers of the Bell exchanges by giving them the use of a part of the Bell System. (pp. 44-45.)

Physical connection would force the Bell System to place at the disposal of and under the control of any opposition company, Philadelphia, for instance, for the time being, one of its circuits from Chicago to Philadelphia, to connect the Bell circuit with the circuits and system of the opposition company and disconnect it, for the time being from the circuits of the Bell System. (p. 45.)

This is not carrying packages or transmitting messages for the subscribers of the opposition, Philadelphia exchange; it is turning over to that exchange for the use of its subscribers the property of the Bell System. (p. 45.)

The fact that the opposition exchange could get such facilities would enhance its importance at the expense of the Bell System. (p. 45.)

Physical connection would force the comprehensive Bell System, which has been built up with foresight and enterprise and is being maintained in its completeness at the cost of maintaining unremunerative exchanges and unremunerative lines, to turn over to, and put under control of, any opposition system for its use and benefit, for the time being, a physical part of the property of the Bell System and at the same time deprive the subscribers to the Bell System of the use of such property. Physical connection would oblige any system to construct and maintain surplus facilities and employ a surplus staff of operators for the benefit of any so-called competing or opposition—but less enterprising—company. (p. 45.)

No possible compensation would be adequate for such service or such deprivation. (p. 45.)

One of the arguments for physical connections is that it will stop duplication. How? All agreements as to territory, rates or character of opposition; all arrangements which would come under the head of combination or pooling; all

understandings or anything that would be equivalent to consolidation or combination, must be eliminated; this is not what is meant by and is not a part of, physical connection. Leaving all understandings out of consideration what effect would physical connection have on the local opposition exchanges? Neither exchange could stop competing for subscribers. The exchange that did would soon dwindle to a point of absolute undesirability; in other words, to a point where the subscription list would offer no inducements to others to join. Consequently activity must be maintained, each exchange making every effort not only to retain all on its list of subscribers but to add more. The same territory must be covered, the consequent duplication of conduits, pole lines, central and branch offices must continue; in fact the strife or competition would have to be more severe. (pp. 45-46.)

It is claimed that physical connection would bring about one system, where any one telephone subscriber could obtain connection with any other telephone subscriber within the limits of possible communication. With physical connection that would be the case, after a fashion, but what kind of a system would it be? It would be imperfect in that it would still be a dual system, with dual charges, made up of heterogeneous units of exchanges and lines, operated under independent managements with different operating methods and interest, with no common control over operators, without which service can not be satisfactory; in fact with all those imperfections that it has taken the Bell interests years to correct—imperfections which can be removed only by combination, agreement, understanding, which would be in effect consolidation. (p. 46.)

Such demand as there may be for physical connection from opposition exchanges is a recognition of superior facilities and comes from a desire to get the benefits of those superior facilities. (pp. 46-47.)

So far as it comes from the public it is an expression of weariness with dual service or so-called competition. (p. 47.)

Is there anything in practice, law or precedent that can compel one system, built upon a comprehensive basis, and trying to meet all the requirements of the public, to turn over its physical property for the use of so-called competitors—opposition exchanges built in selected territory with selfish views or motives? Is there anything to compel one to share

the prosperity of a business created by enterprise and advanced policy with those who wish to appropriate the benefits of such work? Can any public utility company be compelled to divest itself of the operating control of its own property which was created for and may be needed at any time in the conduct of its own business? This is not the kind of interchange of business contemplated by the rules governing common carriers. It is not co-operation. It is pure and simple confiscation. (p. 47.)

It is shown that The American Telephone and Telegraph Company is not in the accepted sense a trust, nor has it been built up by absorbing competing companies or in restraint of business. That while the Bell System is made up of separate corporations, those corporations are not, never have been, and never could be in competition, and also that under any system of organization or under one ownership, separate companies are necessary for purposes of State jurisdiction. (p. 60.)

That a universal and comprehensive telephone system cannot have any operating limits, but must give unbroken, continuous, connecting circuits under one control, from every subscriber's station in every direction to the limits of telephone speaking possibility. (p. 60.)

It is shown that bona fide competition between local exchanges cannot exist, owing to the peculiarities of the service rendered by these exchanges. (p. 60.)

It is shown that physical connection does not and cannot bring about any economical or beneficial result and increases instead of decreases the evil of dual construction and subscription. (p. 60.)

That physical connection would give to subscribers of an opposition exchange the service and use of property provided for the use of others, and for which others pay. (p. 60.)

We are charged with maintaining a large experimental and patent organization largely for the purpose of suppressing new inventions and improved methods. The Bell System does maintain a large experimental and engineering department, but for the purpose of developing the value and efficiency of anything that is new; what it really does is demonstrated by the fact that the construction, equipment and operating methods of the Bell System are the standard the world over. That the equipment of the exchanges of the whole world is either the same as, or is modeled upon that

of the Bell System. And that no construction, equipment or operating methods rejected or 'suppressed' by the engineering experts of the Bell System have ever yet come into permanent use. (p. 60.)

We are charged with making abnormal profits on the equipment, supplies, etc., furnished the operating companies by the Western Electric Company, and in this way increasing the cost of service to the public. It is shown that the profits on Western Electric sales to the operating companies of the Bell System are less than on sales to the independent companies, to the extent at least of the saving in the cost of selling to the operating companies. (p. 61.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY.

BALANCE SHEET, DECEMBER 31, 1910.

ASSETS.

Stocks of Associated Companies	$356,662,338.33	
Bonds of Associated Companies	2,885,000.00	
Capital Advances to Associated Companies	34,165,499.20	$393,712,837.53
Telephones	$11,568,966.04	
Real Estate	2,184,730.44	
Long Distance Telephone Plant	45,948,391.62	59,702,088.10
Cash and Deposits	$13,109,340.32	
Short Term Notes	627,466.52	13,736,806.84
Special Demand Notes		16,970,229.34
Current Accounts Receivable		6,093,415.42
Treasury Bonds		17,300,000.00
		$507,515,377.23

(p. 66.)

On January 1, 1911, there was one Bell Telephone Station to each 16 of the Total Population of the United States. (Back Cover, 1910.)

1911.

OFFICERS.

U. N. Bethell and B. E. Sunny.....Vice-Presidents

Estimates of all the associated operating companies and of the American Telephone and Telegraph Company for all new construction requirements in 1912 have been prepared. It is estimated that about $56,000,000 will be required for current additions to plant in 1912, of which amount some $30,000,000 will be provided by the existing and current resources of the companies. All who are responsible for these expenditures are working in complete understanding of these estimates and the limits set on their expenditures. (p. 6.)

RESERVES AND DEPRECIATION.

While Commissions and all thorough investigators are agreed that provision must be made out of current revenue for depreciation and future replacement of plant, there seems to be some tendency on the part of others to question any accumulation of reserves. (p. 6.)

To make adequate provision for future contingencies it would seem to be plain that in an increasing business there must also be an increasing reserve. (p. 6.)

There seems to be a tendency to insist that 'betterment' of every character shall be represented by capital issue, and that depreciation reserve should be determined with precision, and that it, and all reserves beyond it represent excessive gross charges; that is, gross charges greater than are necessary for the legitimate purposes of the company. (pp. 6-7.)

Reserves are a provision for deterioration and obsolescence of plant beyond that which can be covered by current maintenance and current replacements, and also for deterioration of assets and for fluctuations in gross and net revenue caused by varied business conditions. If there were an exactly ascertainable condition, with which all practice is in accord, many of the difficulties and differences of opinion connected with this question would disappear. (p. 7.)

If the plant were kept in the highest possible state of efficiency by the expenditure of current revenue for repairs,

maintenance and replacements, sufficient to maintain the plant at the highest possible efficiency, it could be operated perpetually and would never have to be replaced. Between this, and maintenance which barely keeps the plant in service, there is a wide margin, and in this margin is the origin of nearly all the differences as to cost of service, and in it is the opportunity to show large apparent profits at the cost of the future of the plant. (p. 7.)

There are, however, in the conduct of business many conditions and possibilities which cannot be met out of current net revenue and should not be met out of capital, but which if not provided for in some way would put all industrial companies upon a speculative basis. (p. 7.)

There is that obsolescence which comes from revolutionary improvements necessitating wholesale replacement of obsolete apparatus or plant, such as the replacement of overhead systems by underground systems, or such as took place when the present method of operating was introduced. There are those fluctuations in net revenue caused by business depression which cannot be overcome by immediate reduction of fixed charges, overhead expenses or operating costs. There is that constant tendency to increase in wages and cost of material, that tendency to increase in operating expenses and capital charges caused by the constant demand for increased efficiency or service, that demand for extensions, productive and unproductive, and that call for improvements in plant, equipment and apparatus. There is that increase in costs of operating, in greater ratio than the increase in business, peculiar to some branches of the telephone service. (pp. 7-8.)

These and many other possibilities always confronting industrial and public service undertakings must be provided for. They are not the subject of capital expenditures, and can only be provided for by an accumulating surplus and reserves invested in productive plant or securities. If these are not provided for, trouble if not disaster or destruction is inevitable. (p. 8.)

Any practice which does not, at the cost of revenue, pass the property on from the present to the future in at least as good a condition as received from the past, is a mistaken practice; it is using capital for the benefit of the present at the expense of the future. (p. 8.)

The main objections urged against an accumulating surplus are the following:

1. That it is provided out of excessive charges to the public for service.
2. That it tends to extravagance of operation, on the theory that close margins tend to greater economies.
3. That is affords a way of giving exorbitant and unreasonable dividends to the shareholders by some form of distribution of the surplus from time to time.

The answer to the third objection depends somewhat on the treatment and ultimate disposition of the unappropriated surplus reserves. (p. 8.)

If these reserves are to remain as assets of the company, *indivisible, inviolable* and *inalienable* except for the purposes above mentioned, invested in productive property, it removes the strongest and only really tangible objection to surplus of the character herein advocated. (p. 8.)

So far as the American Telephone and Telegraph Company and associated controlled companies are concerned, the third objection can be dismissed with the statement of their policy, which is as follows:

> *Except where in the extension of business extraordinary risks are taken which entitle them to some extra profit in consideration of such risks, or the net returns have not been sufficient to make an adequate return, if any, on the capital, the American Telephone and Telegraph Company and associated utilities controlled by it are and will be satisfied with reasonable average returns on their outstanding capital obligations, which compared with other business investments should be about* 8 *per cent, and will not expect or encourage any expectation of more than this; and in those expected instances above referred to, they will only ask for that reasonable return which any equitable commission or court would award them.* (p. 9.)

All the advantages of an unexpended surplus reserve, which remains invested in an inalienable asset of the company, namely in productive plant, accrue to the public by the reduction of revenue which it is not necessary to earn to meet capital charges, as the plant which is constructed out of these surplus reserves does not represent capitalization. (p. 11.)

The Western Electric Company shows marked improvement in operation during the year. The concentration of its

manufacturing operations at Hawthorne, not entirely completed, already shows advantageous results. The gross business for the year was $66,212,000. The foreign business of the company continues favorable. The instruments and apparatus used by the Bell System, manufactured by this company, continue to be the standard the world over. (p. 16.)

During 1910 and 1911 over $23,000,000 of capital advances to associated companies were exchanged for stock of those companies. This exchange was for the most part in non-dividend paying companies that the Parent Company had been obliged to finance and build up from the depressed condition resulting from causes which were prevalent in the early days of the business, companies in which there was only a small percentage of the stock outstanding. These companies either now are or soon will be upon a secure, conservative, dividend-paying basis. The resulting decrease from this cause in the American Telephone and Telegraph Company's revenue is at the rate of over $825,000 per year, that amount additional remaining in the surplus of companies in which this company has about 95 per cent interest. (p. 19.)

The remaining $17,300,000 of 4 per cent Collateral Trust Bonds have been used during the year, together with other assets of the company, to carry out the policies of the company in the acquisition of independent or opposition telephone companies, and in the acquisition of minority interests in the associated companies, as a part of the plant for the rearrangement of their territories. (pp. 20-21.)

Of the $49,000,000 increase in the shares of our associated companies shown in the balance sheet, less than $1,500,000 represents new issues for current construction purposes. The balance was acquired by purchase or exchange, or was new stock received in payment for notes held by the company. (p. 21.)

In improving the transmission of speech a most important work has been the development of methods whereby the loading coil invention can be applied to the heaviest gauge wires and whereby such wires, when equipped with loading coils, can be operated on the phantom principle. By this means telephone service is now successfully accomplished between New York and Denver and the transmission of speech between cities less far apart has been greatly improved. By the application of the phantom principle to such circuits the available facilities have been largely increased so that between the im-

portant telephone centers notable improvements in service have been accomplished (p. 23.)

In long underground cables improvements have also been made so that the phantom principle may be employed in them, and the range over which speech may be transmitted has been so far increased that when this type of cable is installed between Boston and Washington it will be possible to talk underground between those cities and all of the intermediate points, which would have been impossible under the previous state of the art. (pp. 23-24.)

Rearrangement of Territory.

There has been some misunderstanding in connection with the acquisition of the minority interests of certain associated companies. In every one of these companies the American Telephone and Telegraph Company already owned a controlling interest, in fact, held about 70 per cent. of the whole, which has been increased to over 95 per cent. by the recent acquisitions. Each of the companies was an integral part of the Bell System. Each of the companies was connected with the others by the long-distance lines of the American Telephone and Telegraph Company, and each of the companies under license contract with that company. (pp. 25-26.)

The company is now in a position to carry out its policy of 'rearrangement of territory', as outlined in previous reports, and without raising questions of conflicting interests, so as to arrange the territory that it will conform to commercial and natural lines. In the few cases covering small areas not embraced in this control, the working arrangements are harmonious and the operations in perfect accord with the whole system. (p. 26.)

The ultimate object and the reasons for this rearrangement are briefly as follows (p. 26.):

Any telephonic connection must be continuous from any point of communication, as a center, to any point to be communicated with, even to the utmost speaking distance. To obtain continuous speaking circuits there must be uniformity of practice and equipment and perfect co-operation in 'operation' over the whole circuit. Therefore, there can be no restrictive or interfering boundaries between exchanges of a telephone system, and any system should be co-extensive with any territory naturally intercommunicating from national, geographical, or racial reasons. (p. 26.)

To have this uniformity and co-operation there must be common interest, under common control, either through ownership of property, ownership of controlling interest, combination, or agreement, whichever way it is, it must be sufficiently strong to constitute practically one system, intercommunicating, interdependent, universal.

(See discussion of relations and object of rearrangement in previous reports, particularly 1909, 1910.) (p. 26.)

So long as each state retains control of its intrastate affairs and its corporate creations, and so long as interstate traffic and interstate service corporations cannot be detained by state boundaries, so long will some sort of state recognition of the corporations of other states or some corporate machinery be necessary in each state to bring all service corporations doing an interstate business under state control and operative conditions within each state. (pp. 26-27.)

Organization of the Bell System.

Under this rearrangement of territory the American Telephone and Telegraph Company, controlling the entire Bell System, will as it has in the past exercise the functions of a 'centralized general administration.' All questions of policy common to all, all common matters which may have an effect upon the system as a whole, will be settled by the Central Administration. As one administration will do for all what each would have to do for itself, it has the advantage of economy and will maintain uniformity. (p. 27.)

For operating purposes there will be eight or ten divisions with boundaries determined by present commercial conditions, instead of a much larger number of divisions with boundaries fixed more or less accidentally or by other considerations prevailing twenty-five or thirty years ago. Each division whether operated directly or through corporate organizations will have a responsible local administration, supreme in the "intra-division" operations. Each division in turn will be divided into districts with a subordinate but responsible local administration and in many cases these districts will be divided into sub-districts. In each district or sub-district there will be a subordinate but responsible local representative who will in all local routine matters be to the public the representative of the whole system. (p. 27.)

All lines of responsibility and suggestion will go up, from the local representatives to the Central Administration. All lines of authority down, from the Central Administration to the local chief. (p. 28.)

Under the Bell organization each associated company or group of companies is now, and each division hereafter will become an autonomous whole, with its own local control and identity, and within the limits of the general policy and authority, absolute on matters pertaining to or which affect only that territory. (p. 28.)

Such an organization avoids that general tendency in all combinations to concentrate too much, or to become unwieldly and unmanageable, and thus lose all the economical or effective operating advantages. (p. 28.)

There are limits of active usefulness beyond which the physical or mental capacity of individuals will not extend.

The organization as constituted will be flexible enough to enable any rearrangement to be made of the whole or any part, in any way which may be found necessary or advantageous from reasons of policy or from business or legal reasons, without affecting the business. (p. 28.)

Future financing may be done locally, by the divisions or districts, or it may be done by the Central Administration, or partly by each, as best will meet commercial or business conditions at the moment. It will be necessary only to consult expediency. (p. 28.)

But the great advantage is that each division and each subdivision within wide limits is an autonomous whole; there is life and responsibility in the administration and operations of every separate division and sub-division—such life and responsibility as will carry the business along as an independent entity for almost indefinite periods under any possible conditions which may arise. With such conditions, nothing can happen which would be disastrous to the business, for whatever might happen would autonomously right itself, or be righted by the concerted action of this army of individuals, or by some individual in the army, now being trained to action and to take responsibility by having responsibility put upon them. (p. 28.)

With such a body of men, educated in technicalities and theories, which, by practical experience, they have subordinated to usefulness, with a trained capacity for taking responsibility—steadily moving upwards—there will always be a body of fit men to choose from in any emergency. (pp. 28-29.)

INDEPENDENT AND OPPOSITION COMPANIES.

We have, wherever we could do so legally and upon satisfactory terms, and acting with the acquiescence and consent of the local public and local authorities, purchased, merged or made connecting contracts with a large number of independent or opposition companies. Wherever these arrangements have been completed and put into operation there seems to be general satisfaction with the result. (p. 29.)

Our policy in relation to independent companies was set forth in detail in the following announcement made early in the present year, but which has been in effect to a considerable extent for a long time (p. 29):

'In order that the American Telephone and Telegraph Company and its Associated Companies may follow the same policy with respect to maintaining toll connections with independent companies, it seems wise to state just what that policy is in this regard, and to advise the Associated Bell Companies and ask them to adopt the same for their guidance. (p. 29.)

'First. The Associated Bell Companies will extend toll line connections to any point or to any company where opposition exchanges do not exist, and where the result of such toll line connections would be a reasonable return upon the investment involved in the connection. (p. 29.)

'The terms and conditions for transmitting or receiving toll or long-distance messages at such points shall be fair and equitable and as favorable as the terms and conditions extended to any other companies operating under similar conditions. (p. 29.)

'Second. Should any Associated Bell Company acquire, by purchase or otherwise, any toll line which has connection with any independent exchange or toll line, all facilities enjoyed at the time of the acquisition by the independent exchanges or toll lines for sending or receiving messages shall be continued. When increased facilities shall be needed from time to time, such facilities shall be subject to future contracts which shall be made fair and equitable to both parties. (pp. 29-30.)

'Third. Should any Associated Bell Company acquire, by purchase or otherwise, any independent exchange property which has toll line connections, the Associated Bell Company will not cut off or disturb in any way such connections. (p. 30.)

'Fourth. It is to be understood that all existing connecting contracts or arrangements between independent companies or between independent and Bell Companies shall continue without interruption should there be any change in the ownership, thus preserving the status of the situation. (p. 30.)

'Fifth. It is to be understood in all of the above cases that it is the wish and intention to preserve any facilities or connections which independent companies and their patrons may enjoy at the time the property of an independent company may be acquired, with such increase of the same facilities as may be necessary on acount of future growth and extension of the business; but it is not the intention that by virtue of such acquisition, the range of facilities of any independent company or of the patrons of any independent company shall be increased. (p. 30.)

'Sixth. The Associated Bell Companies will not require connecting companies to use any special make of apparatus or equipment—the only requirement will be the use of such facilities and equipment as will give commercial service. (p. 30.)

'Seventh. It is to be distinctly understood that this policy does not in any way contemplate physical connection between opposition exchanges, nor does it contemplate the interchange of messages between two or more exchanges located within the same town or community.' " (p. 30.)

We believe, and we think the public is fast coming to believe:

That telephone service to be perfect must be universal, intercommunicating, interdependent under one control, and that no isolated section can be considered independently of any other or of the whole system, and that rates must be so adjusted as to make it possible for every one to be connected who will add to the value of the system to others. (pp. 33-34.)

That the highest commercial value of the telephone service depends on its completeness, on the extent and comprehensiveness of its possibilities of intercommunication not only between individuals but between aggregations of individuals, *i. e.*, communities. (p. 34.)

We believe that we are working this problem out on the broad lines of the greatest benefit to the public, and that this is evidenced by the fact that our standards and lines of organization and operation are the standards the world over. (p. 34.)

As a corollary to this—we recognize a 'responsibility' and 'accountability' to the public on our part, which is something different from the something more than the obligation of other public service companies not so closely interwoven with the daily life of the whole community. (p. 34.)

The Western Union system is to the telegraph situation what the Bell System is to the telephone situation in that each tries to give a comprehensive universal service but the comparison ends there. (pp. 40-41.)

The Western Union has over 25,000 offices in over 21,000 places, and in addition many thousand agency offices at the toll stations of the Bell System. From less than 2,000 of the 21,000 places, with an aggregate population of about 40,000,000, over 90 per cent. of its entire revenue is obtained. Nearly 17,000 of the 21,000 places have an average revenue of but slightly above $10 a month with a maximum of $50 a month. Some joint operating arrangement, generally with the railroad telegraph service, has been made for these and many other places where the revenue is sufficient to maintain an exclusive Western Union office. The increasing demand of the railroad telegraph service upon its operators, and because their first duty is to the railroad service, places the commercial telegraph service in a secondary place, which, with the best of intentions, is not conducive either to promptness or efficiency. (p. 41.)

The Bell Telephone System has scattered over the whole territory exchanges or toll line centers from which radiate subscribers' circuits and branch toll line circuits. These centers are connected with each other by toll or long-distance circuits and constitute the telephone system. The toll circuits of the telephone system reach 70,000 places. At most of these places and upon substantially all of these branch toll circuits, and on many circuits connecting into the intermediate stations on trunk lines, there is not enough business to occupy fully either operators or wire facilities; were it not for the indirect advantage to the whole system few, if any, of them would have been established. While the telephone cannot be used interchangeably with the telegraph instruments in the transmission of messages over busy circuits by busy operatives, the 'not-busy' operatives and circuits could be used for telephone and telegraph service 'alternately' instead of 'simultaneously,' as there is not enough business to justify such circuits being 'composited,' *i. e.*, arranged for simultaneous use of telegraph and telephone. The joint use

of such lines and operatives would be a source of economy. At busy offices and on busy circuits, the circuits could be 'composited' for the simultaneous use for telegraph and telephone purposes. Each service would require its distinct operating force and its distinct offices, as the services rendered by the telegraph and the telephone are functionally and fundamentally different although both use wire circuits. The telephone makes up a circuit and places it at the use of the customers, who do the communicating; *i. e.*, it leases its circuits to others for personal communication. The telegraph by its own operators performs all the services of collecting, transmitting and delivering messages; *i. e.*, it transmits over its circuits, for others, personal communications. (pp. 41-42.)

The great economy and advantage would come from the 'compositing' or simultaneous use of one system of circuits for the two services, eliminating entirely one of the wire systems. The advance in the state of the art of 'compositing' lines for joint use of the telephone and telegraph has been very marked in the very recent past. (p. 42.)

The accompanying diagram illustrates a small section each of the telephone and the telegraph system. It is self-explanatory. (p. 42.)

The diagram shows that the existing wire mileage of the present telephone toll circuits and telegraph plants, brought up to standard construction with some provision for deficiencies or extensions, if 'composited' or used jointly, would for all practical purposes be the equivalent of two plants each of the same mileage, one for telephone and one for telegraph; or to put it another way: the wire mileage necessary to give the same service need be about half the combined wire mileage of the two systems separately operated as now. (p. 42.)

The annual gross revenue from either a telephone or a telegraph system should be approximately 33 per cent. of the total cost of, or the investment in plant. If in two systems of equal size one plant were eliminated and both services were performed over the other, the percentage of joint revenue to plant would be substantially doubled, or 65 per cent. To put it in another way: The maintenance of a wire plant costs about 30 per cent. of the annual gross revenue from the plant. The simultaneous use of a plant for both purposes would mean maintenance of one wire system against the doubled revenue from both services, or a decrease in maintenance alone of about 15 per cent. of the gross revenue. In addition

to these savings there would be the savings of the capital charges and of taxes on plant which would be made necessary. This brings within the realm of possibility a reduction of from 20 per cent. to 25 per cent. in the gross charges or gross revenue without affecting the profits of the business. (pp. 42-43.)

In order to avoid confusion it must be distinctly borne in mind that the telephone service referred to here is the toll or long-distance service and not the circuits of the exchange service which could not be used for any other purpose. This toll or long-distance service is so intimately interwoven and interdependent both in operation and use with the telephone exchange service that it could not be separated, but the operation of the toll circuits in connection with the exchange circuits would not interfere with their use for telegraph purposes by a regularly organized telegraph staff." (p. 43.)

Any public service plant which is represented by relatively small outstanding capital obligations is stronger, can better meet its public obligations, and so long as the surplus is inviolable and inalienable as above defined, and the company under government control and regulation, the greater the ratio of surplus and reserves to plant, the nearer we get to all the supposed advantages of public ownership without any of its risks, while retaining all the advantages of private management.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY,
BALANCE SHEET, DECEMBER 31, 1911.

ASSETS.

Stocks of Associated Companies	$405,859,400.00	
Bonds of Associated Companies	1,689,000.00	
Capital Advances to Associated Companies	52,737,803.83	$460,286,203.83
Telephones	$ 12,334,255.96	
Real Estate	2,188,239.85	
Long Distance Telephone Plant	48,155,893.26	62,678,389.07
Cash and Deposits	$ 29,635,036.24	
Short Term Notes	175,000.00	
Temporary Cash Loans	1,107,000.00	30,917,036.24
Special Demand Notes		6,681,613.71
Current Accounts Receivable		4,959,946.10
		$565,523,188.95

LIABILITIES.

Capital Stock	$318,427,500.00	
Capital Stock Installments	2,522,209.52	$320,949,709.52
Four Per Cent. Collateral Trust Bonds 1929	$ 78,000,000.00	
Four Per Cent. Convertible Bonds, 1936	20,459,000.00	
Five Per Cent. Coupon Notes, 1907	5,000.00	
Five Per Cent. Coupon Notes, 1910	4,000.00	
Other Notes Payable	10,600,000.00	
Indebtedness to Western Union Telegraph Co. for New York Telephone Co. Stock payable 1912 to 1915	16,500,000.00	
Undertaking to deliver ($12,617,760) 5% 25-year bonds of Cumberland Tel. and Tel. Co. in exchange for 78,861 shares Cumberland Stock	12,617,760.00	138,185,760.00
Dividend Payable January 15	$ 6,368,550.00	
Dividend Adjustments on New Stock	328,273.48	
Interest and Taxes Accrued, but not due	2,132,324.49	
Current Accounts Payable	748,624.76	
Reserve for Unearned Revenue	2,345.99	9,580,118.72
Depreciation Reserve	$ 40,383,161.80	
Surplus	56,424,438.91	96,807,600.71
		$565,523,188.95

CHARLES G. DU BOIS, Comptroller.

(p. 48.)

1912

OFFICERS.

Union N. Bethell and B. E. Sunny..Vice-Presidents
Union N. Bethell .....Director

Depreciation

Each year adds emphasis to the necessity of providing fully for that depreciation which comes from obsolescence. (p. 6.)

Local service can be given by a plant that would be useless in a comprehensive system made up of local exchange and toll as well as long distance service, and for that reason the Bell plant must be maintained at a higher standard than would be necessary if it were a purely local exchange service. (p. 6).

In the meantime the reserve is invested in revenue-earning plant and the public is getting the advantage of the use of a large amount of plant upon which no dividend has to be earned. (p. 7.)

An idea of the changes in apparatus and operating methods that have taken place is most graphically set out in the engineering report. So gradual have these changes been and so gradual has been the improvement that it is hard to realize the extent of them. Any telephone engineer perfectly at home in a central office five years ago would be utterly lost in one today if he had not kept touch with the changes. The central office and substation apparatus and operating methods have been entirely changed, and yet there has been no wholesale scrapping of the apparatus as was customary in the early days. This possibility, however, will be continually present and the depreciation reserve must be fully ample to take care of it if and when it comes. In the meantime the reserve is invested in revenue-earning plant and the public is getting the advantage of the use of a large amount of plant upon which no dividend has to be earned. (pp. 6-7.)

BELL TELEPHONE SYSTEM IN UNITED STATES.
COMPARISON OF EARNINGS AND EXPENSES, 1911 AND 1912.

(ALL DUPLICATIONS, INCLUDING INTEREST, DIVIDENDS AND OTHER PAYMENTS TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY BY ASSOCIATED HOLDING AND OPERATING COMPANIES, EXCLUDED.)

	1911	1912	Increase
Gross Earnings	$179,477,998	$199,172,154	$19,694,156
Expenses—Operation	$ 60,085,425	$ 65,246,677	$ 5,161,252
Current Maintenance	30,184,522	31,762,636	1,578,114
Depreciation	28,655,832	34,942,802	6,286,970
Taxes	8,965,922	10,333,349	1,367,427
Total Expenses	$127,891,701	$142,285,464	$14,393,763
Net Earnings	$ 51,586,297	$ 56,886,690	$ 5,300,393
Deduct Interest	13,610,860	14,205,365	594,505
Balance Net Profits	$ 37,975,437	$ 42,681,325	$ 4,705,888
Deduct Dividends Paid	25,966,876	29,460,215	3,493,339
Surplus Earnings	$ 12,008,561	$ 13,221,110	$ 1,212,549

COMBINED BALANCE SHEETS, 1911 AND 1912.
(DUPLICATIONS EXCLUDED.)

ASSETS:	Dec. 31, 1911	Dec. 31, 1912	Increase
Contracts and Licenses	$ 2,943,381	.....	$ 2,943,381*
Telephone Plant	666,660,702	$742,287,631	75,626,929
Supplies, Tools, etc.	20,749,568	23,601,262	2,851,694
Receivables	32,916,127	37,700,623	4,784,496
Cash	41,878,140	35,729,037	6,149,103*
Stocks and Bonds	66,777,231	84,942,265	18,165,034
Total	$831,925,149	$924,260,818	$92,335,669
LIABILITIES:			
Capital Stock	$379,727,832	$393,209,925	$13,482,093
Funded Debts	241,032,822	294,380,353	53,347,531
Bills Payable	41,198,431	38,268,341	2,930,090*
Accounts Payable	23,382,438	25,320,335	1,937,897
Total Outstanding Obligations	$685,341,523	$751,178,954	$65,837,431
Employees' Benefit Fund	.....	8,845,000	8,845,000
Surplus and Reserves	146,583,626	164,236,864	17,653,238
Total	$831,925,149	$924,260,818	$92,335,669

*Decrease.

WESTERN ELECTRIC COMPANY.

Our associated operating compaines have settled into a steady stride and in normal years the rate of growth requires only a normal amount of new construction and reconstruction. The sales of the Western Electric Company to the associated companies have therefore not recently been subject to violent fluctuations and in the past year did not differ materially from those of 1911. Sales to other customers have been increased. While the rate of net profit on the investment in the business is not as large as is earned by other electric manufacturing companies, it is sufficient to pay interest on the bonds and the regular rate of dividends and provide the reserve which such a business requires. (p. 14.)

Following the rearrangement of territories of the associated companies, and of their organizations to conform thereto,—described in previous reports and now practically completed—satisfactory progress was made during the year in rearranging the financial structure of various groups. These changes have occasioned considerable changes in this company's holdings of stocks and notes of the associated companies, and explain the greater part of the gain of $41,000,000 in stocks shown in the balance sheet and an increase of less than $8,000,000 in notes held, large amounts of this company's note holdings having been exchanged for stock. With small exceptions, new capital secured by these companies other than from this company during 1912 was secured by the issue of bonds. (pp. 16-17.)

PLAN FOR EMPLOYEES' PENSIONS, DISABILITY BENEFITS AND INSURANCE.

A Plan for Employees' Pensions, Disability Benefits and Insurance adopted by this company, its associated companies, the Western Electric Company and The Western Union Telegraph Company, was put into operation on January 1, 1913. This company has made an initial appropriation of $2,000,000 and undertaken to credit interest at 4% per year on the unexpended balance and to appropriate at the end of each year an amount sufficient to restore the fund to its original amount, provided that the appropriation in any year is not to exceed $500,000. Each of the companies has similarly made an initial appropriation based upon its annual payroll and undertaken

to restore it by annual appropriations, and also to credit interest as in the case of this company. (p. 17.)

The aggregate initial appropriations for these funds by all the companies, including The Western Union Telegraph Company and the Western Electric Company, amounted to $10,845,000. (p. 18.)

The underlying motive in the plan was to secure the younger employees, who were intending to make their life-work in the service of the Bell System, against the ordinary contingencies during the period when it is impossible to provide against them by the exercise of the usual thrift and economy; and to give such employees freedom from anxiety either for their own welfare or that of those dependent upon them. (p. 18.)

The following announcement of the plan was made, and very favorably received (p. 18):

TO THE EMPLOYEES OF THE WESTERN UNION TELEGRAPH COMPANY, WESTERN ELECTRIC COMPANY AND THE BELL TELEPHONE SYSTEM:

The new plan of benefits for disability due to accidents or sickness, of insurance and of pensions, goes into effect with the new year. (p. 18.)

Nearly 200,000 men and women who are now giving their best years to the telephone and telegraph service of the country, will henceforth be assured of assistance in the exigencies of life, for which not all are able to provide, and will also be assured of a provision for their declining years. (p. 18.)

It is but natural that every employee should desire to assume the normal responsibilities of life and to surround himself and those dependent upon him with the things that make life complete and enjoyable. Unforeseen happenings may make these responsibilities heavy burdens, and whatever may be put aside for the day of misfortune must in the beginning be small and accumulated slowly. A realization that obligations must be met in times of misfortune, as well as in times of prosperity, has made the need of something beside merely an old age pension appear absolutely vital. (p. 18.)

Employers buy and employees sell service. Perfect service is only to be found when fidelity and loyalty are reciprocal in

employer and employee. It is this relationship that brings satisfaction and success to both. (p. 19.)

The intent and purpose of the employer in establishing a plan of benefits, is to give tangible expression to the reciprocity which means faithful and loyal service on the part of the employee, with protection from all the ordinary misfortunes to which he is liable; reciprocity which means mutual regard for one another's interest and welfare. (p. 19.)

This is justice, and without justice and sympathetic interest, we cannot hope to do a thoroughly good piece of work. (p. 19.)

The American Telephone and Telegraph Company, which centralizes the Associated Companies into one system, with one policy for universal service, has considered the interests of all workers and has made a comprehensive plan possible. It is the administrative clearing house and the underwriter of the necessary reserve fund, upon which a general plan must depend. (p. 19.)

One illustrative instance of the exercise of these functions has been the unifying of the various interests so that any employee may aspire to work anywhere in the country with uninterrupted benefits, and any company can obtain any man it needs, without prejudice to his welfare. (p. 19.)

In behalf of the management of the American Telephone and Telegraph Company, the Western Union Telegraph and the Western Electric Companies, let me say that we have a personal interest in our public service, a personal interest in our employees and a personal interest in our common country. It is our hope that what we have already accomplished has helped the men and women of the Bell system to become happier and better American citizens, and it is our New Year's wish that what has been planned for the future will contribute to their constantly increasing happiness and betterment.

THEO N. VAIL.

January 1, 1913. (p. 19.)

During the year 1912 great benefit has resulted in all parts of the country from the activities of the large engineering staff which is maintained at headquarters to work out for the associated companies problems of their plant and service. A number of important engineering developments have been initiated and many of great value have been well advanced toward completion, but have not yet reached the stage where they can be described. While a large number have been com-

pleted, a very important part of the year's progress has consisted in putting into effect in the plant and service of the associated companies those numerous improvements which have recently been developed and standardized. (pp. 21-22.)

A plant such as the telephone system of the United States must be so designed and constructed that at all times it may be kept in a healthy condition of growth. This growth means not only change in size but also change in form, to meet not only conditions of increased magnitude, but also to conform by natural modifications in structure to the advancing requirements of the service which are becoming more numerous, more complex and more exacting. The telephone plant, in all its parts, must ever be subject to a process of evolution tending always to a higher and higher type. Its capabilities of responding to these advancing requirements furnish a good test of its design and efficiency and value. A study of the engineering operations for the year shows that the plant of the Bell System has been designed and constructed so as to withstand this test and that it is capable of responding to every reasonable demand that may be made upon it and of continuing to grow indefinitely not only in size but in constantly increasing efficiency and usefulness. (p. 22.)

Experience with the engineering devices and methods employed in the New York-Denver Line, referred to in last years' report, having demonstrated their value under severe practical conditions, a systematic introduction of these improvements was undertaken and actively prosecuted throughout the United States, so that at the end of 1912 there was a total of 54,750 miles of the heaviest-gauge wires equipped with the new arrangement, thus doubling their transmission efficiency, and in addition to this there were obtained, without any expenditure for new wires, phantom circuits equivalent to 12,600 miles of the heaviest-gauge circuit. These improvements have brought into communication with each other places formerly too remote, and between a great number of places less remote, noteworthy improvements in the service have been reported. (pp. 22-23.)

Engineering plants have been completed for the extension of four heavy copper wires from Denver to San Francisco and construction work is to commence as soon as the weather permits. (p. 23.)

Engineering work has been done during the year upon 29 telephone central office buildings and 162 central office equipments for the various associated companies. The most im-

portant of these central stations is the large new telephone and telegraph building in New York City, which is rapidly approaching completion. This is to be the largest building used for housing telephone and telegraph central office equipments and operating rooms. It will contain two telephone central offices of 10,000 lines each, the long-distance switchboard and operating headquarters, and a new operating room and equipment for the Western Union service. The engineering plans and specifications for this work have been completed, so that the installation of the apparatus and wires may commence as soon as the building is ready. (pp. 23-24.)

The Insurance Department has, in conjunction with the Engineering Department, inspected during the year 290 central office buildings of the associated companies, and where necessary, made recommendations for reducing as far as possible the fire risk in addition to studying the plans for new buildings, and additions to existing buildings with a view to embodying in their construction the best ideas for obtaining safety and reducing the fire hazard and the insurance rates. (p. 24.)

The work of making and revising fundamental plans for the associated companies was actively continued during the year, 21 such plans having been made or revised for as many cities and for a growth in those cities of more than 600,000 stations. (p. 24.)

Acting for the associated companies, the Engineering Department has co-operated with State Commissions and with national engineering societies in the development of the best methods of constructing and operating electric light and power and railway wires so as to avoid interference with telephone and telegraph circuits. (p. 24.)

The results of the latest scientific developments of the general engineering staff in the art of speech transmission have been placed at the disposal of the associated companies in the form of general bulletins, and special advice has been given in numerous specific cases. Bulletins also containing results of the latest developments and improvements in building plans, traffic engineering practice, best methods of local and toll operating, standard central office equipment, and insurance and fire protection matters have been issued. (p. 24.)

In the numerous and diverse parts of the instruments and apparatus which constitute the plant of the associated com-

panies, more than one thousand changes in standards have been made, producing in the plant or service improvements in economy and efficiency. (pp. 24-25.)

In judging of the importance of this work to the associated companies, it is in most cases impossible to set down its value in dollars and cents, but in some instances it is possible to give some indication of its value in the form of figures. This is true in the case of an improvement made during the year in aerial cables. The large savings reported last year as resulting from the improvement in cable sheaths applied to underground cables only. On account of peculiar conditions affecting overhead cables, particularly those causing vibration in the cable and a tendency to crystallization in the alloy of the sheath, the improvement could not be applied to aerial cables. Development work upon this subject during the year has been so successful that now it is possible to use an improved and less expensive alloy in the sheaths of overhead cables as well as underground cables. This results in an additional saving to the associated companies in the first cost of construction of more than $300,000 each year. (p. 25.)

Another instance is the saving resulting from the further introduction of the so-called single ticket method of operating toll lines, the extension of which method in the service of the associated companies during the past year will bring about economies of operation amounting to several hundred thousand dollars per annum. (p. 25.)

Other improvements introduced in the service are new forms of cord circuits for local and trunk line work; improvements in local operating efficiency; improvements in toll line efficiency; improvements in toll cord circuits; improved forms of relays for switchboards, and improved switchboard cords. While all of these represent substantial gains in efficiency, they also represent important economies which, according to a conservative estimate, amount to more than a million dollars a year. (p. 25.)

Legal.

The Legal Department of the American Telephone and Telegraph Company is a centralized bureau for the record and dissemination of information on all legal subjects which are of special interest to the associated companies. It issues for their use periodical bulletins containing all new court cases

of interest, and also other bulletins giving the orders, rulings and decisions affecting telephone and telegraph companies made by all the Commissions in the United States. It also issues, in book form, the telephone and telegraph cases decided by Commissions, and a volume for each State of the statutes relating to telephone and telegraph companies, which is revised as new legislation is enacted. It has experts on all legal matters which are of special interest to the associated companies and furnished information, briefs, and documents to their counsel. These experts visit the Associated Companies and assist in the preparation and argument of difficult cases. In view of the size and extent of our system and operations, the amount of litigation in the State and Federal Courts is small. (p. 27.)

In addition to the Interstate Commerce Commission, there are now Commissions with jurisdiction over telephone companies in thirty-three states. Many matters involving our plant and business are brought before these bodies from time to time, and the legal and other representatives of the company are co-operating with the Commissions in an effort to meet all questions arising, in such a manner as to insure the improvement, development and extension of the service on terms just to all parties. (p. 27.)

The relations of our companies with the public and with the supervising Commissions have continued, on the whole, to be satisfactory. It would be impracticable to review the many orders, rulings and decisions made during the year, but most of them have been favorable and none, it is believed, will have the effect of permanently retarding the development of the business along the lines which have been adopted as the policy of the company. (pp. 27-28.)

The New Jersey Commission has sustained our rates in Camden, and elsewhere throughout southern New Jersey, as just and reasonable. (p. 28.)

The Ohio Commission has sustained our objection to compulsory physical connection with another company operating in localities where we were already rendering service, and where the effect of such a requirement would be to make our facilities available to such other company, without the justification of a public necessity. (p. 28.)

The Attorney General of the United States has, during the year, conducted an examination of our affairs, and as a result of such examination, has suggested a thorough study,

from the standpoint of the public, by the Interstate Commerce Commission, of the whole problem of the relation of government to the transmission of intelligence by telegraph and telephone. The company's policy, as already announced, will be to co-operate fully with and assist the Commission in every possible way. (p. 28.)

The Interstate Commerce Commission has already issued a general accounting order, effective January 1, 1913, providing a uniform system of accounts for telephone companies. The order follows generally along lines which the accounting officers of this company have endorsed. (p. 28.)

OFFICE OF THE ATTORNEY-GENERAL,
WASHINGTON, D. C., January 7, 1913.

HONORABLE CHARLES A. PROUTY,
Chairman, Interstate Commerce Commission,
Washington, D. C.

MY DEAR SIR:

This Department has been engaged for some time past in an investigation of certain complaints made on the part of persons interested in independent telephone companies against the American Telephone and Telegraph Company. There are said to be some 20,000 independent telephone companies, representing investments aggregating many millions of dollars, which together operate somewhat more than 4,000,000 telephones. No one of these companies represents capital or business comparable in size with that of the American Company or any of its principal subsidiary companies. The American Telephone and Telegraph Company, either directly, or through subsidiary companies whose stock it owns, operates what is known generally as the Bell Telephone System, which reaches upwards of 70,000 places, distributed among practically all the states of the Union, having some 4,500,000 telephones in use, and operating the principal long distance lines between the States. It has an invested capital of a book value, of nearly six hundred million dollars. It also is the owner of a large block of stock of the Western Union Telegraph Company, through which it practically controls the operations of the telegraph and cable lines of that corporation. The policy of the company is set forth in the annual report of its directors to the stockholders, for the year ending December 31, 1910, as follows: (p. 29.)

In carrying out the policy so frankly outlined in this statement, representatives of many of the independent companies have complained that the American Company has not contented itself with the normal extension of its system, but that it has purchased competing lines in such manner and in such circumstances as to destroy competition which would otherwise have furnished the public with better facilities at lower rates than have since obtained, and that it has refused, either directly or through competitive and originally independent lines acquired by it, to make connections between local lines not owned or controlled by it and its own long distance lines, and has terminated contracts and arrangements for the interchange of business between the lines so acquired, and lines of companies not owned or controlled by the American companies. Complaints are also made that in cases where the American companies have assumed to make such connections and to interchange business with independent companies, they have done so in such manner, as in effect, to prevent a satisfactory exchange of facilities of communication between the American lines and those not controlled by that company, thereby intending to discourage the patrons of the independent companies and drive them to the American companies. (pp. 32-33.)

Complaints are also made that the American Company has discriminated between the lines of the Western Union Telegraph Company, in whose stock it owns a large interest as above mentioned, and the lines of the Postal Telegraph Company, in which it is not interested, in cases where subscribers to its telephone lines request to be put in communication with the Postal Company for the purpose of giving it messages to be transmitted by telegraph. (p. 33.)

It is also complained that the rates maintained by the American companies for local and long distance telephone service are unduly high in places and between communities where there is no competition; that wherever independent companies have been established, rates have been greatly reduced, and that in every instance when the American Company has secured control of independent companies it has immediately increased the rates to an undue extent. (p. 33.)

Representatives of independent companies contend that the American Company should receive and interchange business with them on a basis analogous to that on which transportation by railroad is conducted, while the American Company maintains that such interchange is not compelled by statute and is impracticable. (p. 33.)

Many of these questions, it seems to me, cannot be appropriately dealt with by the law department of the government, but should be made the subject of regulation after a careful investigation of the whole subject by your honorable body. The powers vested in you by statute, appear to me to be ample to enable you to make a comprehensive and thorough investigation of the matter. It may be that as a result of such investigation, you will conclude that additional legislation should be suggested to Congress. Quite a number of the States have enacted laws vesting in public utilities commissions or similar bodies, jurisdiction, which has been executed in some instances, with respect to the acquisition of telephone lines of one company by another, and with respect to the interchange of business and facilities between telegraph and telephone lines. State regulation, however, cannot be a satisfactory method of ultimate solution of the questions arising out of telephone operation. The value of a telephone service depends largely upon the facility of connecting every individual telephone user with any point upon any telephone line in the United States; but this should be attained under conditions which secure to the public the maximum of convenience upon the most reasonable terms consistent with a fair return upon the investment and under suitable supervision and control by your honorable body. (pp. 33-34.)

The Interstate Commerce Act as at present in force, makes telegraph, telephone and cable companies engaged in sending messages from one State, Territory or District of the United States to any other State, Territory or District of the United States, or to any foreign country, common carriers within the meaning and purpose of the act. It requires all charges for service rendered in the transmission of messages by telegraph, telephone or cable in interstate or foreign commerce or in connection therewith, to be just and reasonable, and makes it unlawful for any common carrier subject to the provisions of the act, to make or give any undue or unreasonable preference or advantage to any particular persons, etc., or locality, or to any particular description of traffic in any respect whatsoever, or to subject any particular person, company, etc., or locality, or any particular description of traffic, to any undue or unreasonable prejudice or disadvantage in any respect whatsoever. (p. 34.)

The 6th section of the act which requires common carriers subject to its provisions to file with the Commission and print and keep open to public inspection schedules of rates, fares

and charges, is probably not broad enough to extend to telegraph and telephone companies; but the 15th section confers upon the Commission ample power of investigation on its own initiative, and enacts that if the Commission shall be of opinion

> "that any individual or joint rates or charges whatsoever demanded, charged, or collected by any common carrier or carriers subject to the provisions of this Act for the transportation of persons or property or for the transmission of messages by telegraph or telephone as defined in the first section of this Act, or that any individual or joint classifications, regulations or practices whatsoever of such carrier or carriers subject to the provisions of this Act are unjust or unreasonable or unjustly discriminatory, or unduly preferential or prejudicial or otherwise in violation of any of the provisions of this Act, the Commission is hereby authorized and empowered to determine and prescribe what will be the just and reasonable individual or joint rate or rates, charge or charges, to be thereafter observed in such case as the maximum to be charged, and what individual or joint classification, regulation, or practice is just, fair, and reasonable, to be thereafter followed, and to make an order that the carrier or carriers shall cease and desist from such violation to the extent to which the Commission finds the same to exist, and shall not thereafter publish, demand, or collect any rate or charge for such transportation or transmission in excess of the maximum rate or charge so prescribed, and shall adopt the classification and shall conform to and observe the regulation or practice so prescribed." (pp. 34-35.)

Moreover, by the 20th section, the Commission is authorized not only to require annual reports from the common carriers subject to the act, but also, by general or special orders, to require them to file monthly reports of earnings and expenses

> "and to file periodical or special, or both periodical and special, reports concerning any matters about which the Commission is authorized or required by this or any other law to inquire or to keep itself informed or which it is required to enforce." (p. 35.)

Under the provisions of the statute referred to, the Commission is, therefore, fully empowered to make the most thorough investigation into the rates and practices of the telephone companies to determine what are reasonable maximum rates

to be charged for communication from one State to another, and the practice to be observed in all of the dealings of the telephone companies with the public and with other companies. No comprehensive investigation into the organization, management and conduct of telephone companies has, so far as I am aware, ever been had by governmental agency. The investigation of this Department has dealt only with certain suggested violations of the Sherman Anti-Trust Act, but the whole problem of the relation of government to the transmission of intelligence by telephone and telegraph is one of such far-reaching importance and so affects the welfare of the entire community, that it appears to me to be a subject which should be thoroughly studied from the standpoint of the public, in order that a governmental policy with respect to the telephone and telegraph business may be intelligently formulated and adopted. The Interstate Commerce Commission is clothed with the powers above referred to and the subject is one affecting such general public interest that I venture to suggest that you undertake this work. If these suggestions commend themselves to your honorable body, I beg to add that all of the information which has been collected in this Department bearing upon the subject, will be cheerfully put at your disposal.

Very respectfully,

GEO. W. WICKERSHAM,
Attorney General.

(p. 36.)

It will be noticed that the Attorney General in his letter to the Interstate Commerce Commission says:

> 'The value of a telephone service depends largely upon the facility of connecting every individual telephone user with any point upon any telephone line in the United States; but this should be attained under conditions which secure to the public the maximum of convenience upon the most reasonable terms consistent with a fair return upon the investment and under suitable supervision and control by your honorable body.' (p. 38.)

This is a clear and comprehensive statement of the fundamental policy upon which the Bell System has been evolved * * *'' (p. 38.)

The organization on the lines set forth in previous reports is about complete, and the division of the work is so clearly drawn and so closely correlated between the local administra-

tion of the associated companies and the central general administration of the American Telephone and Telegraph Company that there is no duplication of effort or conflict in administration. (p. 39.)

On January 1, 1913, there was one Bell Telephone Station to each 13 of the Total Population of the United States. (Back Cover, 1912.)

1913

Officers.

Union N. Bethell and B. E. Sunny...Vice-Presidents
Union N. Bethell .....Director

Estimates of all the associated operating companies and of the American Telephone and Telegraph Company for all new construction requirements in 1914 have been prepared. It is estimated that about $56,000,000 will be required for current additions to plant in 1914, of which amount some $25,000,000 will be provided by the existing and current resources of the companies. (pp. 5-6.)

Depreciation.

Limited local service can be given by a plant that would be useless in a comprehensive system made up of local exchange and toll and particularly in connection with long-distance service. Although 90 per cent. of the connections are purely local, the 10 per cent. that are not local are more important and of a greater necessity than the 90 per cent. local and must be equally available through one station equipment. For that reason the Bell plant must be maintained at a higher standard than would be necessary if it were a purely local exchange service. (p. 6.)

Improvements in service and particularly in equipment and operating methods have been continuous and so gradual that it is hard to realize the extent of them. Those familiar with the service five years ago and not in touch with it again until the present time would recognize and appreciate the changes which those in daily touch do not realize and cannot fully appreciate. In that time the radius of conversation has doubled. It is easier to talk with Denver today than with Chicago then, and with the completion of the line to the Pacific Coast in 1915, commercial communication will be dependable and practicable. (pp. 6-7.)

The policy of investing the depreciation reserve in revenue-earning plant has continued, and the public is getting the advantage of the use of a large amount of plant upon which no dividends or interest charges have to be earned." (p. 7.)

The necessity of providing fully for that depreciation which comes from obsolesence continues and will continue so long as the improvement of the equipment, apparatus and service, and increase in possible distance of communication continue. (p. 6.)

AVERAGE OPERATING UNITS OF ASSOCIATED OPERATING COMPANIES.

(See table on page 13.)

The table on page 13 shows average operating revenue and expenses per station, operating ratios, unit plant cost, etc., of the associated operating companies (not including the American Telephone and Telegraph Company's long-distance lines), for the year 1895, 1900, 1910, 1912 and 1913. (pp. 10 and 12.)

While the use of the subscriber's station as the unit of telephone statistics is open to the objection that we are using a standard which itself fluctuates, nevertheless it is the best standard or unit thus far obtainable and is therefore continued. (p. 12.)

The changes of the past year are not large, but indicate that all the expenditures necessary to the maintenance of the property at a high standard, such as maintenance and depreciation and operation, are continued along normal lines with a slight increase. (p. 12.)

Particular attention is called to the per cent of net earnings and of dividend and interest disbursements to total plant and other assets:

Net earnings to plant and other assets.....5.69%
Dividends and interest to plant and other assets...4.92%

In other words, the property employed earned less than 6 per cent per annum, and the dividends and interest paid were less than 5 per cent upon the value of the property, which could not be considered unreasonable. (p. 12.)

Sales of the Western Electric Company for 1913 amounted to $77,532,860, of which $50,681,070 represents sales to the companies of the Bell Telephone System, and $26,851,790 represents sales to other customers. (p. 12.)

The concentration of the company's manufacturing work at its main plant at Hawthorne, near Chicago, is now nearly completed. (p. 12.)

Each year the economies and efficiencies due to the relation between the Western Electric Company and the companies of the Bell Telephone System become more apparent. (p. 12.)

During the thirty-seven years from 1877 to 1914 there were designed and constructed and installed fifty-three improved types and styles of telephone receiver, and seventy-three types and styles of transmitter. These figures do not include hundreds of minor improvements made in both transmitters and receivers. (p. 16.)

At the beginning of 1914 there were in the Bell System 12,000,000 telephone receivers and transmitters owned by the Bell Company. Of these practically none were made prior to 1902, and of all the instruments now in service the average are less than five years old. (p. 17.)

Efficient transmitters and receivers are essential to successful telephone transmission, but the problem of talking through long underground cables or over great distances could not be solved by increasing the loudness of the transmitter or the receiver. Failure to understand this has been the cause of loss to many who have invested in companies promoting so-called loud-speaking telephones. (p. 17.)

In the transmission of speech one mile of underground cable is often equal to 50 or 100 miles of open wire overhead, and in underground transmission a point was soon reached where no speech could be got by any transmitter. (p. 17.)

Unless this difficulty could be minimized, further growth of the telephone was not to be expected. The annual report covering the year 1880 says:

> "A large amount of work has been done in the Electrical and Experimental Department, both examining new inventions and testing telephones and apparatus and in studying the question of overhead and underground cables and the improvement of telephones and lines both for short and long distance service. *This work is expensive, but it is of the first importance to our company and must be continued.*" (p. 17.)

At that early date our engineers and scientists had rightly determined that they must give attention not only to the apparatus at the ends of the line, but to the line itself and to the intermediate apparatus. (p. 17.)

By 1881 we had laid experimental underground cables for a short distance alongside of a Massachusetts railroad track

with small results. In 1883 several cables were laid at Boston, the longest of which was 1,500 feet. The subscribers using this cable could not talk satisfactorily further than the suburbs. (pp. 17-18.)

Type after type of cable was installed only to be withdrawn in a few years and replaced by something better. (p. 18.)

By 1887 the introduction of the twisted pair underground conductor began. This meant the abandonment of the entire underground plant of the Bell System and the introduction of the new type, without which the telephone system as we know it today would be an impossibility. (p. 18.)

Millions of dollars were spent in this construction and reconstruction and experimental work. By 1902 the art had so far advanced by the use of the Pupin loading coils and other improvements, that a "loaded cable" for suburban service was successfully installed between New York and Newark. (p. 18.)

By 1905 we had a "loaded cable" twenty miles long extending from New York in the direction of Philadelphia, and by 1906 a cable 90 miles long was successfully operated between those two cities, but in the then state of the art this cable could not be used beyond Philadelphia or New York. (p. 18.)

By 1911 our experiments, researches, and improvements in manufacture had so advanced that we were enabled to design an underground cable, capable of giving a satisfactory conversation between Washington and Boston. (p. 18.)

By 1912 a section of this new cable was laid from Washington to Philadelphia, there connecting with the earlier type of cable to New York. (p. 18.)

During 1913 a section of the new cable was laid between New Haven and Providence, connecting at New Haven to an earlier type of cable extending to New York, and connecting at Providence to an earlier type extending to Boston. (p. 18.)

While talking the entire distance from Boston to Washington was impossible through the old types, yet by using the underground in connection with the overhead the seaboard cities from Washington to Boston could be no longer isolated by storms destroying the overhead wires. (pp. 18-19.)

During the year 1913 we have made such further advances in the art of loading and balancing underground circuits, and have so greatly improved the intermediate apparatus, that it is now possible to talk satisfactorily by underground wires

from Boston to Washington, in part through types of cable formerly suitable for short haul distances only. These short haul cables make up 47 per cent of the total cable in the line. (p. 19.)

In 1912 talking underground for the first time between New York and Washington represented the longest distance underground yet achieved. By 1913, this distance had been doubled. The Boston-Washington telephone cable is several times longer than any other in the world. (p. 19.)

It is difficult to estimate the far-reaching importance of these researches and it is too early to forecast the benefits to be derived from them. Enough has been already ascertained, however, to show that they tend to greatly increase the long-distance traffic and to accomplish enormous savings in the amounts of copper wire which would otherwise be required to establish communication between remote points. (p. 19.)

An exhaustive study of the New York-Denver line during the last year has shown that these improvements in transmission through underground wires are also applicable to overhead lines. Plans are now making for the rearrangement of the New York-Denver circuit; when accomplished, the telephone transmission between New York and Denver will be equal to that now given between points about 200 miles apart and will insure satisfactory talk from the Atlantic to the Pacific and in due course bring all points in the United States within speaking distance of each other. (p. 19.)

In every other department of telephone development the work of the general engineering staff has been continuous and equally fruitful. (p. 20.)

During the period of twenty-five years practically all of the switchboards have been changed several times. Millions of dollars have been spent on inventions and experimental development. We have designed, manufactured and installed all kinds of switchboards—automatic, semi-automatic and manual—and we have exhaustively studied the practical workings of every type of switchboard in use. (p. 20.)

It has frequently been asserted that the Bell System did not employ automatic switchboards because of patents controlled by others. The Bell Company owns or has rights in every United States patent and patent application which would be necessary to operate its system upon the so-called automatic plan—which is not automatic for the subscriber as the subscriber does all the manipulation in the making of a

connection. As yet it has not been demonstrated that the automatic system would given as good and dependable service as we now render to the public, when used in connection with the extensive and comprehensive suburban and interurban telephone system of the Bell. (p. 20.)

At the beginning of the telephone industry there was no art of electrical engineering nor was there any school or university conferring the degree of electrical engineer. Notwithstanding this, the general engineering staff was soon organized, calling to their aid some of the most distinguished professors of science in our universities. (p. 20.)

As problems became more formidable and increased in number and complexity, the engineering and scientific staff was increased in size and in its specialization, so that we now have working at headquarters on the problems of the associated companies 550 engineers and scientists carefully selected with due regard to the practical as well as the scientific nature of the problems encountered. (p. 20.)

Among them are former professors and instructors of our universities, post graduate students and other graduates holding various engineering and scientific degrees from 70 different scientific schools and universities, 60 American and 10 foreign institutions of learning being represented. (p. 21.)

No other telephone company, no government telephone administration in the world, has a staff and scientific equipment such as this. (p. 21.)

The Bell Company, recognizing at the outset that the problems of telephony would require for their solution the highest degree of scientific and engineering skill, has been foremost in the development of telephone engineering and in the encouragement of scientific research. (p. 21.)

It can be said that this company has created the entire art of telephony and that almost without exception none of the important contributions to the art have been made by any government telephone administration or by any other telephone company either in this country or abroad. (p. 21.)

The department further co-operates with the legal departments of the associated companies in disposing of their questions of a general character, so as to aid in their solution along sound lines harmonizing with the general policy of the system. (p. 22.)

In addition to the Interstate Commerce Commission, there are now commissions exercising jurisdiction over telephone companies in forty States. The jurisdiction of these commissions embraces many questions of the utmost importance, especially in connection with rates, service and the issuance of securities. Generally, the commissions have welcomed the effort of the Company to aid them in determining these questions along lines which tend toward efficiency and an extension of the service upon a fair basis. (p. 22.)

Early in the year, William A. Read & Co. brought an action in Chicago involving the relations between this Company and the Central Union Telephone Company. It was impossible to adjust this matter upon any reasonable basis and it seemed that the ultimate outcome would render a reorganization of the Central Union Telephone Company necessary. The Company therefore consented to the appointment of receivers, and the court has appointed capable men who are now taking charge of the property and will operate it, pending the suit. (p. 23.)

We were advised during the year 1913 that criticism had been directed against the Bell System with respect to certain matters which were national in their scope. We therefore entered into negotiations with the Attorney General of the United States for the purpose of adjusting such matters to meet the views and wishes of the Federal Administration. After a series of interviews and negotiations, all of the suggestions of the Attorney General were accepted by the Directors of the American Telephone and Telegraph Company, and the following correspondence is here printed in order to show the attitude of the Administration and of the American Telephone and Telegraph Company (pp. 23-24):

December 19, 1913.

THE ATTORNEY GENERAL,
Washington, D. C.

Sir:

Wishing to put their affairs beyond fair criticism, and in compliance with your suggestions formulated as a result of a number of interviews between us during the last sixty days, the American Telephone and Telegraph Company, and the other companies in what is known as the Bell System, have determined upon the following course of action (p. 24):

First. The American Telephone and Telegraph Company will dispose promptly of its entire holdings of stock of the

Western Union Telegraph Company in such way that the control and management of the latter will be entirely independent of the former, and of any other company in the Bell System. (p. 24.)

Second. Neither the American Telephone and Telegraph Company nor any other company in the Bell System will hereafter acquire, directly or indirectly, through purchase of its physical property or of its securities or otherwise, dominion or control over any other telephone company owning, controlling, or operating any exchange or line which is or may be operated in competition with any exchange or line included in the Bell System, or which constitutes or may constitute a link or portion of any system so operated or which may be so operated in competition with any exchange or line included in the Bell System. (p. 24.)

Provided, however, that where control of the properties or securities of any other telephone company heretofore has been acquired and is now held by or in the interest of any company in the Bell System and no physical union or consolidation has been effected, or where binding obligations for the acquisition of the properties or securities of any other telephone company heretofore have been entered into by or in the interest of any company in the Bell System and no physical union or consolidation has been effected, the question as to the course to be pursued in such cases will be submitted to your Department and to the Interstate Commerce Commission for such advice and directions, if any, as either may think proper to give, due regard being had to public convenience and to the rulings of the local tribunals. (pp. 24-25.)

Third. Arrangements will be made promptly under which all other telephone companies may secure for their subscribers toll service over the lines of the companies in the Bell System in the ways and under the conditions following (p. 25):

(1) Where an independent company desires connection with the toll lines of the Bell System it may secure such connection by supplying standard trunk lines between its exchanges and the toll board of the nearest exchange of the Bell operating company. (p. 25.)

(2) When the physical connection has been made by means of standard trunk lines, the employees of the Bell System will make the toll line connections desired, but in order to render efficient service it will be necessary that the entire toll circuit

involved in establishing the connection shall be operated by, and under the control of, the employees of the Bell System. (p. 25.)

(3) Under the conditions outlined above, any subscriber of any independent company will be given connection with any subscriber of any company in the Bell System, or with any subscriber of any independent company with which the Bell System is connected, who is served by an exchange which is more than fifty miles distant from the exchange in which the call originates. (p. 25.)

(4) The subscribers of the independent company having toll connections described above, shall pay for such connections the regular toll charge of the Bell Company, and in addition thereto, except as hereinafter provided, a connection charge of ten cents for each message which originates on its lines and is carried, in whole or in part, over the lines of the Bell System. (p. 25.)

The charges incident to such service shall be made by the Bell Company against the independent company whose subscriber makes the call, and such charges shall be accepted by the independent company as legal and just claims. (p. 25.)

(5) Under this arrangement the lines of the Bell System shall be used for the entire distance between the two exchanges thus connected, provided the Bell System has lines connecting the two exchanges. Where the Bell System has no such lines, arrangements can be made for connecting the lines of the Bell System with the lines of some independent company in order to make up the circuit, but such connections will not be made where the Bell System has a through circuit between the two exchanges. (p. 26.)

(6) Any business of the kind commonly known and described as "long lines" business offered for transmission over the lines of the American Telephone and Telegraph Company shall be accepted for any distance, that is, on such "long lines" business calls shall be accepted where the point of destination is less than fifty miles from the exchange where the call originates as well as where the point of destination is greater than fifty miles therefrom. (p. 26.)

(7) Any business of the kind commonly known and described as "long lines" business offered for transmission over the lines of the American Telephone and Telegraph Company

shall be accepted at the regular toll rate and no connecting charge shall be required. But such calls shall be handled under the same operating rules and conditions as apply to calls over the local toll lines. (p. 26.)

Very respectfully yours,

AMERICAN TELEPHONE AND TELEGRAPH COMPANY,

By N. C. KINGSBURY,

Vice-President.

(p. 26)

With the telephone exchange the question of those connected is vital; your service depends upon one system connecting all telephone subscribers in the same community and upon all communities being connected with each other. (p. 40.)

A telegraph system reaching all telegraphic points avoids physical transfers from one system to another, with the incidental delays and obstruction to good service. (p. 40.)

Telephone and telegraph systems operated under common control can avoid duplication by making use of the same wires. (p. 40.)

For practicability of management, economy of operation or efficiency of service there should be one combined telephone and telegraph system. This has been the Bell contention and this is the conclusion reached by the Post Office committee and by Congressional advocates of government ownership, who say in substance that the *telephone and telegraph should constitute one system, and that a monopoly.* (p. 40.)

The policy of the Bell system is that the value of a telephone service is in direct proportion to its "universality" and "dependability"; that is, to the certainty of reaching promptly by telephone the greatest number of people. *This policy, which has been the strength of the Bell System and the cause of whatever supremacy in the telephone field it has, is now being made the strongest argument for government ownership and operation, ignoring the fact that the Bell System has extended or popularized its service to an extent far beyond that of any government system in the world.* (p. 45.)

The Bell System makes rates for such kinds or classes of service as may be desired by, and will be acceptable to, each and every possible user. In this way it has made it possible for, and to the advantage of, every person to be connected

with the exchange system who would add to the value of the service to others. The government could not do more even by giving free service. (p. 45.)

Under the understanding with the Department of Justice this Company's holdings of the Western Union stock had to be disposed of. While that company was in good condition and would undoubtedly increase its dividend to 4 per cent for the current year, yet the agitation for government ownership and competition made a very unfavorable market which would not improve so long as there was some $30,000,000 of stock to be distributed and absorbed. (pp. 57-58.)

The American public has been educated to depend on the most efficient, most extended telephone service in the world. The relative number of the people reached is the largest, and the average cost to each is the lowest of any important system in the world. It will not tolerate less; under private ownership it will not pay more. (p. 60.)

The steady reductions in rates made by the Bell System have been made possible by its improvements in methods and apparatus; they are not due to competition. They have been as great without competition as with it. (p. 60.)

Theories are at best only unsatisfactory substitutes for facts established by experience. Only such theories as have stood the test of practical experience may be finally accepted. In a field where experience is abundant, to assert theories contradicted by this experience is to invite disaster. (p. 60.)

The policy of the Bell System—one telephone system—under one control—has been appropriated as their policy by the advocates of government ownership. They assert the desirability of monopoly as their fundamental premise. (p. 60.)

On January 1, 1914, there was one Bell Telephone Station to each 12 of the Total Population of the United States. (Back Cover, 1913.)

1914

OFFICERS.

Union N. Bethell and B. E. Sunny..Vice-Presidents
Union N. Bethell .....Director

DEPRECIATION.

The policy of the Bell System with respect to depreciation and depreciation reserve has continued on lines that are recognized as sound and reasonable both by investors and by the telephone-using public. (p. 5.)

"That policy, briefly stated, is this: Each Bell Company makes charges to its operating expenses for the purpose of creating and maintaining proper and adequate depreciation reserves, and these reserves are used to meet the expense of depreciation. (p. 5.)

The Interstate Commerce Commission defines expense of depreciation as follows:

> '(a) The losses suffered through the current lessening in value of tangible property from wear and tear (not covered by current repairs).
>
> '(b) Obsolescence or inadequacy resulting from age, physical change, or supersession by reason of new inventions and discoveries, changes in popular demand, or public requirements, and
>
> '(c) Losses suffered through destruction of property by extraordinary casualties.' (pp. 5-6.)

RETARDATION OF GROWTH.

The effects of the disturbed business conditions generally prevailing in this country during the past year have not been so serious for the Bell Telephone System as for most industries. Chiefly they were felt in a retardation of the usual growth. Thus the increase in number of subscriber stations was only about 76 per cent of the number added in 1913, and was less than in any one of the four years previous thereto. This smaller net growth was not so much due to the falling off in new subscribers as to the unusual number of disconnections. Usually for about three new stations added there is a

net gain of one station. In 1914 the proportion was nearly four new stations for a net gain of one. In traffic the number of all messages shows the small gain of slightly over 2 per cent. (p. 6.)

Most of this retardation in growth occurred in the latter half of the year and steps were at once taken to reduce the expenditures for new construction by postponing such extensions as were not immediately necessary, with the result that the additions to plant, which at the beginning of the year were estimated to aggregate $56,000,000, were as shown on a previous page only $50,000,000. (p. 6.)

The amount charged by the Bell Telephone Companies for depreciation in 1914 was over $41,000,000 of which the amount unused during the year was about $15,000,000. While the $15,000,000 will some day be required for replacement of plant, it does not remain idle in the meantime, but is invested in productive plant, and is thus temporarily employed as additional capital on which no dividends or interest charges have to be paid (p. 6).

For the year 1915 it is estimated that the current additions to plant will aggregate about $35,000,000, and construction work is now proceeding on that basis. (p. 7.)

The general business conditions, particularly as they affect the demands for telephone service, are being carefully studied and watched, and should they improve as is hoped the construction program can be promptly increased to whatever extent seems justified. (p. 7.)

AVERAGE OPERATING UNITS OF ASSOCIATED OPERATING COMPANIES.

(See table on page 13.)

The table on page 13 shows average operating revenue and expenses per station, operating ratios, unit plant cost, etc., of the associated operating companies (not including the American Telephone and Telegraph Company's long-distance lines), for the years 1895, 1900, 1910, 1913 and 1914. (p. 10.)

Although there are objections to the use of the subscriber's station as a unit or standard, especially in comparisons of one part of the country with another, yet it is the best unit available and for general comparisons of the whole system from one year to another it gives some idea of the trend of the business. (p. 10.)

WESTERN ELECTRIC COMPANY.

As early as 1880 it was recognized as important that an ample source of supply of approved apparatus should be provided for the operating companies, and a contract was made with the Western Electric Company by virtue of which operating experience and manufacturing experience were brought into co-operation, under the supervision of our engineering forces to provide standard apparatus. The apparatus was largely covered by patents and its sale was limited to the Bell Telephone System. The operating companies were, and remained, free to buy of the Western Electric Company or elsewhere as seemed to them most desirable. (p. 12.)

Particular attention is called to the per cent. net earnings and of dividend and interest disbursements to total plant and other assets of associated companies:

Net earnings to plant and other assets.....5.51%

Dividends and interest to plant and other assets..4.87%

In other words, the property employed earned less than 6 per cent. per annum, and the dividends and interest paid were less than 5 per cent. upon the value of the property, which could not be considered unreasonable. (p. 12)

It will be observed that both earnings and expenses per station are now slightly less from year to year and are very much less than in earlier years. The average earnings per station have naturally decreased as the telephone service has been extended to smaller communities and to smaller users in the cities. A very large majority of the subscribers pay an annual rate much less than the average. The expenses per station have in spite of increased wages and taxes been kept down by improved methods and greater efficiency all along the line. (p. 12.)

When at a later period our plans involved connecting with rural companies, it became advisable that they also should have standard apparatus, and all restrictions as to sales by the Western Electric Company were removed. (p. 14.)

In the evolution of the business the Western Electric Company became also a source of supply of other materials not manufactured by it, and about fifteen years ago at the suggestion of one of the operating companies an arrangement was worked out by the Western Electric Company under which it assumed the relation of purchasing agent and store-

keeper. This arrangement was adopted one by one by the other associated companies and by this Company for its Long Distance Lines Department; and at the present time as a result, the Western Electric Company is the purchasing agent and storekeeper of the entire Bell System. (p. 14.)

The contract defining this relation has been investigated by public commissions, and not one has found it other than a desirable arrangement.

This contract as drawn is so liberal as to the power to make exceptions and to cancel that in effect it is hardly more than a codified routine.

Thus as a natural evolution and because the relation is advantageous to all the parties, the Western Electric Company has become the manufacturing, purchasing and supply department of the Bell System. In both efficiency and economy the value of the relation to the system is enormous.

Sales of the Western Electric Company for 1914 amounted to $66,400,000, of which $43,900,000 represents sales to the companies of the Bell Telephone System, and $22,500,000 represents sales to other customers. (p. 14.)

The orders on hand January 1, 1915, were $4,309,000 less than on January 1, 1914. (p. 15.)

The effect of the European war upon the company's foreign investments is, of course, very serious, but cannot be measured with any degree of certainty at this date. (p. 15.)

Although not effective until 1915, mention may be made here of the plan recently announced, by which employees of two years' service or more in the Bell System are aided to become stockholders of this Company to the extent of a limited number of shares each which they are to pay for out of their wages at the rate of $2.00 per share per month. Over 30,000 employees in all parts of the country have applied for shares under this plan. (p. 17.)

In the Bell System standardization does not represent a standing still but means unceasing effort, continually improving and upbuilding. Standard specifications covering improvements in all of the thousands of pieces of apparatus and methods employed in the plant and traffic of the Bell System follow each other with astonishing rapidity. (p. 18.)

The plant of the Bell System must not be regarded merely as a completed machine which becomes worn out, and then, after time, is thrown away and replaced by a new one. It is

like an ever-living organism, always growing in size and usefulness, incorporating into its structure what is new and improved, and eliminating the obsolete, the worn out and the used up. Thus it is kept permanently in a condition of full vigor and at the point of highest attainable efficiency, anticipating the ever-growing needs of the service and responding successfully to the always-increasing requirements of the public. (p. 18.)

The amount of this development and the rapidity at which new improvements are incorporated into the Bell System, and the speed with which the worn out parts are eliminated, are exemplified by the fact that during the past five years under the standard specifications of our General Engineering Staff, new plant of all kinds costing more than $425,000,000 was added to the Bell System and plant to the value of more than $175,000,000 was taken out and removed from service. (p. 18.)

How promptly the Bell System has responded to the increased demands made upon it by the public may be understood from the fact that from 1906 to 1914 new construction work in the Bell plant was done under our engineering specifications to an amount of more than $700,000,000. (pp. 18-19.)

Each year we expend large sums in the scientific, engineering, experimentation and development work which constitutes the process of standardization. As a result of such work, and pursuant to our policy of always providing for the associated companies the best obtainable, we have introduced into our switchboards improvements, in large matters and small, literally by the tens of thousands. In doing these things we have expended on the development of this part of the art alone during the past five years many millions of dollars, and because we have done this we have saved for the public and the associated companies many more millions. (p. 19.)

While the improvements which have already accrued in the service rendered to the public by the associated companies have amply justified the expenditure of this money, it is in preparing the way for the orderly future development of the switchboard system along rational and effective lines that this expenditure will bear its greatest fruit. It will enable our companies to avoid the enormous reconstruction costs which would result from even one false step in a matter so complex as this. It keeps out of the switchboard art all that

is merely speculative or notional. It settles disputed questions by practical demonstrations conducted so carefully as to produce not the slightest disturbance in the telephone service rendered the public anywhere, and performs the great service of putting the new ideas into effect so that they will fit into the existing plant most effectively and most economically. It thus avoids the immense multiplication of expense and the widespread annoyance to telephone users everywhere which would result if each of the associated companies, acting for itself and at its own expense, were to conduct these developments in connection with its own plant. (pp. 19-20.)

Large and well equipped as our own development staff is, we are constantly on the lookout for new ideas wherever they may arise. A good idea may spring up in the mind of man anywhere, but as applied to such a complex entity as the Bell System, the countless parts of which cover the whole United States, no individual unaided can bring the idea to a successful outcome. A comprehensive and effective engineering, scientific, development and manufacturing organization such as is provided by the Bell System is necessary, and years of expensive work are required before the idea can be rendered useful to the public. (p. 20.)

It would be inefficient and extravagant to treat the switchboards and instruments and wire plant of the associated companies as isolated units each to be developed regardless of the others. The plant and methods of each company must be co-ordinated with those of all of the other companies, because each is but a part of the unified structure constituting the Bell System, each part of which must be planned so as to fit into the other parts wherever they may be located throughout the United States. (p. 20.)

The latest product of this unceasing organized effort of the Bell System is the transcontinental telephone line, 3,600 miles long, bringing San Francisco within commercial talking distance of the principal cities on the Atlantic seaboard. Few can appreciate the years of indefatigable labor on the part of our entire staff, and the immense sums of money which this achievement has cost, and fewer still can foresee the countless ways in which it will, from now on, make for the benefit of all the service rendered to the public everywhere. For it should be understood that transcontinental telephony is not the result merely of one concrete idea or device. It is a problem which was solved by the cumulative effect of improvements,

great and small, in telephone, transmitter, line, cable, switchboard and every other piece of apparatus and plant required for the transmission of speech. (pp. 20-21.)

The first telephone line was a copy of the best telegraph line of the day. It was an iron wire strung on poles and house-tops, using the ground for the return circuit. Electrical disturbances coming from no one knows where were picked up by this line. These disturbances were frequently so loud in the telephone as to destroy conversation. When the second telephone wire was strung alongside of the first even though perfectly insulated from it, another surprise awaited the telephone man. Conversation carried on over one of these wires could plainly be heard on the other. Another strange thing was discovered—iron wire was not as good a conductor for the telephone current as it was for the telegraph current. The talking distance, therefore, was limited by the imperfect carrying power of the conductor and by the confusing effect of all sorts of disturbing currents from the atmosphere and from the neighboring telephone and telegraph wires. The hard drawn copper circuit greatly extended the range of transmission, and the metallic circuit, transposed according to the methods devised by the Bell engineers, eliminated the outside disturbances. But this was not to be the state of affairs for long. Powerful electric light and power circuits began to spring up and methods which had formerly been successful in protecting the telephone from disturbing currents were not effective against these new high powers. (p. 21.)

Years and years of work have been devoted to safeguarding the telephone circuit from these disturbances, and each new success which the telephonist has accomplished in this direction has been met by a further advance in high potential and high current on the part of the power circuits. And thus a section of the General Staff is constantly employed in studying electric railway, electric power and electric light circuits and systems, and in co-operating with the electric light and power engineers so as to maintain harmonious relations between the two classes of circuits. (p. 22.)

It has been said with truth that if these high power circuits had been discovered and in use before the telephone was invented, the results obtained from the first telephone lines would have been so utterly impracticable that it is hard to think of anyone being foolish enough to regard the telephone as having any commercial value. (p. 22.)

The metallic circuit and hard drawn copper wire so greatly improved and extended the telephone service that wires began to increase in such numbers that the use of cables was imperative. A new series of difficulties then arose, one mile of underground cable cutting down the transmission sometimes as much as one hundred miles of overhead wire. How successful has been the attack upon the underground wire problem is best shown by the figure of over 9,000,000 miles of wire in underground cable in 1914 as against only a few hundred miles in 1884. (p. 22.)

In extending the range of talking through underground cables and through overhead wires, thousands of inventions and engineering improvements have been utilized, including the loading coil of Dr. Pupin and others of very great importance. (p. 22.)

How great is the sum total of these improvements was demonstrated when Dr. Alexander Graham Bell, using a reproduction of the first telephone ever made, talked successfully from New York to San Francisco where he was heard by Mr. Watson more clearly and more distinctly than he was when the same two men held the first of telephone conversations using this same type of instrument over a wire extending only from one room to another in the same building. (p. 23.)

Deduct from the telephone art the grand total of improvements which the Bell Company has introduced into its system since the day of the first telephone conversation, and this faint-speaking, crude wooden first telephone is all that is left. (p. 23.)

Greater than the benefits directly accruing from the use of the transcontinental service, will be the advances which, in numberless ways as time goes on, will result from this achievement to the telephone-using public everywhere. At the present time, telephonic communication is provided between California and the principal cities on the Atlantic Coast. Engineering studies have already been begun for the extension of this service to include the principal cities of the United States so that direct telephonic intercommunication between them all will become general. (p. 23.)

The line from New York to San Francisco is overhead throughout its entire extent except for a few short stretches of cable in cities and under rivers. Notwithstanding the improvements which we have made in underground cables, it is

still necessary in such long lines as this, to exclude as far as practicable all lengths of cable however short. For reasons which need not be detailed here, even with the very best cable and apparatus known to the art, the distance through which speech may be clearly and distinctly transmitted is greatly restricted when the wires are placed underground. (p. 23.)

To extend the distance, therefore, through which speech may be transmitted in underground cables, has been the subject of constant experimentation and development by our engineers since the foundation of the Company, and the successful working of the underground cable from Boston to Washington, commented on in the report of last year, marked an advance as important and as far beyond anything accomplished elsewhere in the art of transmitting speech underground as is the result just obtained between New York and San Francisco in transmitting speech overhead. (p. 24.)

While the accomplishment of transcontinental telephony is the culmination of years of scientific development and experimental investigations and engineering effort, and while it marks the end of an era, it does not mark the end of our progress. It has laid the foundation for a new period of greater development and greater progress. We are confident that the work of our engineers in this new era will equal and even surpass what they have done before. (p. 26.)

The Legal Department has the care of such legal matters as are naturally incidental to the operation by the Company of its long-distance lines. In addition to this, and much more important than this, is the service which the Legal Department renders in connection with the work of the associated companies. It is difficult to give a satisfactory general description showing clearly the nature and extent of this general service. It is not inaccurate to say that the Legal Department acts as counsel for each of the associated companies. (p. 26.)

To disseminate such information as of general interest, the Legal Department issues various publications, including periodical bulletins calling attention to current decisions of the courts involving questions which are of interest to the telephone industry, the publication in book form of telephone and telegraph cases decided by the commissions in this country and in Canada, and compilations of the statutory law relating to telephone and telegraph companies, as well as occasional special bulletins upon special questions of importance. (p. 27.)

Supplementing this general service, special service is rendered to the associated companies covering substantially all classes of questions which arise throughout the system; so that the Legal Department while leaving to the local companies the transaction of local legal affairs, in fact supervises and in a general way directs these affairs for the system, to the end that the entire experience of the system may be available for the benefit of each part of it, and that as to all questions of a general nature involving matters of policy which may affect or react upon the system as a whole, sound and consistent theories may be developed." (p. 27.)

ADMINISTRATION.

DEVELOPMENT OF THE BELL ORGANIZATION.

In all industrial organization there are two distinct divisions of action, "Administration" and "Operation."

"Adminsitration" is centralized, it is legislative, determinative of general subjects, supervisory and judicial, acts alike for all branches and divisions and may be located apart from the seats of action. (p. 36.)

"Operation" is executive. It is the action, the operation supreme as to local questions but responsible to the central administration. It may be seperated into divisions or departments each having operating relations with the other but no lines of authority between them. (pp. 36-37.)

In the Bell System the "Administration"' is in the American Telephone and Telegraph Company, the central company. The "Operation" is in the Associated Companies, each operating on defined lines in distinct territory, each in fact an operating division and no more. (p. 37.)

This organization is the result of the original plan of development as well as a necessity for operating and legal requirements. Because of state sovereignty, any nation-wide public service corporation, performing intrastate and interstate service which requires co-ordination of effort and co-operation in operation must, for purposes of franchise and state control, be operated through subordinate or associated companies operating under the jurisdiction of each state. (p. 37.)

When the telephone was born, electrical science was still in its laboratory swaddling clothes, industrial electricity simply

a dream, the electrical engineer as now considered, nonexistent. Single-line grounded circuits only were known, and were used for telephone circuits. The current used for electric telephone speaking being the most delicate of all operating currents and the telephone receiver the most delicate of all instruments, the inductive disturbance from atmospheric or artificial electrical currents so interfered with and confused the delicate telephone current that distinct speech was difficult at all time on all outside lines and often quite impossible; the difficulty increasing with distance until speech was impossible. (p. 37.)

In the then existing practice of electrical intercommunication it was more economical to use a heavy current for operation than to construct and maintain lines of superior construction. The telephone current, because of its high inductive quality next to impossible to insulate against, reproduced itself on all lines in close proximity and caused interference. Increased strength of the transmitter current to overcome obstructions, increased the interference and, where there was a large concentration of lines, made understandable conversation impossible. If the maximum use of the telephone was to be obtained, there must be large concentration of wires, and to make this possible it was imperative to overcome obstacles and improve the path of the current by quality and character of construction, and by neutralizing the disturbances. (pp. 37-38.)

The telephone instruments to be of service must be used in connection with lines equipped with auxiliary and ancillary apparatus of great variety, none of which existed at the time; it had to be originated and created. (p. 38.)

There was nothing from which the commercial policy and operating methods could be adapted, nothing by which the usefulness or value of the telephone exchange service could be demonstrated. Its value was in the number of people that could be reached from any one station, and nothing existed by which this value could be shown. All had to be created; there was nothing in practice to guide, nothing in precedent to follow. Never did any invention of such potential importance come on such virgin fields. (p. 38.)

The original Bell Company was not an operating company; it owned the telephone patents and leased the telephones. (p. 38.)

The lack of confidence, the lack of any belief in the possibilities of the "Yankee toy," so-called, made it impossible to create for purposes of development any large organizations with proper financial support. The development had to be made in units of territory of limited area and distance, and by those whose principal capital was belief, courage and persistence, with "everything to make and little to lose." The licenses for exchange service were limited in term and in area. Interconnecting the local exchanges into one intercommunicating system was reserved to the parent Bell Company. The business and the local lines upon which it was developed were left very largely to those who held the licenses. (pp. 38-39.)

Development work in any branch of industry or science is full of suggestion; difficulty suggests remedy. The creation of the telephone service was full of difficulties to overcome and suggestions were abundant and discordant. (p. 39.)

In the development of the service in separated, unrelated, uncontrolled units, independent research, investigation, experiment were being carried on in each unit. The manufacturing of operating and experimental apparatus was in workshops where it was but a subordinate part of the output. Each operating company and each workshop was following its own devices. Similar ideas, suggestions, inventions, combinations and experimentations were being tested and tried out, adopted or abandoned, with little reference to the work which was being done or which had been done in the other units or other shops. There was no organized control or systematization of effort, little or no conference or interchange or exchange of ideas, experience or practice. The development both in methods of operation and in apparatus not only lacked uniformity but it was not always on the best lines. Practice was progressing, precedents were being made, but there was little opportunity for the practice of any one to be made the predecent for the others. (p. 39.)

There was multiplication of effort, waste and expenditure, unavoidable under the existing conditions, in every branch of the service and in every part of each organization. (p. 39.)

With the growing appreciation of the value of the telephone came innumerable claimants, not only to the original invention of the telephone, but to every feature of the auxiliary apparatus. Claims were based on abandoned experiments, undeveloped ideas, misleading interpretations of patent claims, and on the broadened claims of reissued patents. (p. 40.)

The mechanical and electrical instrumentalities necessary to give telephone service include all or parts of thousands of inventions. It was necessary that the ownership of, or the right to operate under all these patents should be available for the use of all, and whether developed inside or outside the business should be controlled for the common use of all. The business had to be protected, and those investing their capital, their efforts, their work, their all, were entitled to protection from each other and from the outside. (p. 40.)

Because of all these reasons, because of the rapid increase in the amount of capital necessary to establish the business, because of the growing recognition of the importance of co-operation and uniformity, some organization, some administration which would guarantee protection was necessary. (p. 40.)

Protection required expensive legal and expert assistance. The purchase and perfection of inventions required large expenditure and investment of capital. Above all, was necessary complete information and knowledge of the state of the art past and present. There was no accumulation or collection of the knowledge of the past. The knowledge of the practice of the present was not being properly or systematically preserved or collected in available form. To do all these things in any effectieve way was beyond the resources of any one operating company. To do it in an incomplete manner was worse than useless. In such matters imperfect or incorrect or incomplete knowledge was more dangerous than no knowledge. Mistakes made from such causes involve large losses. (pp. 40-41.)

The trouble was common to all. The remedy must also be common to all.

Co-operation was necessary. There must be a bureau or department, a central clearing-house, as it were, with an expert staff covering the technical branches of the business, to which all effort, research, experiment, suggestion, all the crudities of the business could be brought; where they could be thoroughly considered and judged; the worthless, those which lacked novelty or were but recurring ideas, thrown out; good ideas imperfect or unpractical in themselves, perfected or combined with other ideas and made practical. Where a knowledge of all that was going on in all fields of endeavor, where the history of the past and records of the present, could be gathered; where everything in the way of knowl-

edge or information could be made available for the use in the general administration and operation of the business.

The central Bell Company, which had the greatest interest in the future of the telephone business which it controlled through its reserved rights, was the center around which the business necessarily concentrated. (p. 41.)

As part of its administration a department was organized which included the operating, technical and patent branches of the business, through which could be collected everything necessary for common use and to which all could come for advice on all matters, and for protection against all outside attacks. (p. 41.)

The Bell Company through this department carried on research and experimental work and legal investigations in respect to inventions, and acquired all necessary to the art, or rights to use them. It assumed the conduct of all contests relating to any of these matters, for the benefit and protection of the operating companies. (pp. 41-42.)

Peaceful enjoyment in the use of essential apparatus is a necessity of development. (p. 42.)

Through the knowledge and information of the state of the art in all its branches; through the information and knowledge of the inventions and patents; through the work of experts in all these branches; through the possession or right to the use of all necessary inventions; through the freedom to develop on the very best lines; the operating Bell Companies are enjoying peaceful operation as against patents and patent litigation, and the Bell System has become the premier and model system of the world. That equity and just consideration to and for others have been the policy in building up this protection is best evidenced by the fact that there has been but one patent or legal contest in that connection for years, and that was where an inventor endeavored, through a broadened claim of a questionable patent, to get control of the common battery switchboard in general use. Had his claim succeeded, it would have cost the companies and the public millions of dollars. It did not succeed. (p. 42.)

Through the patents controlled by the Bell System all the essential features of the telephone service now in use could without doubt be controlled, but patents in the hands of the Bell System have not been and are not being used for aggression; they are used only for protection. (p. 42.)

CENTRALIZED GENERAL ADMINISTRATION

Universal telephone service can be had only through a nation-wide intercommunicating system superimposed upon and connecting local exchange systems. This requires uniformity in operating methods and instrumentalities; it requires co-ordination of effort and co-operation in the highest degree, which can be obtained only through one system, one policy, one centralized administration. (pp. 42-43.)

There are as a rule many ways of accomplishing the same object, only one of which is the best. It is only when the supreme test comes that the best and only the best can be used. (p. 43.)

Telephone *exchange* service is local, and a satisfactory local service can be obtained through different methods of operation and many varieties of apparatus. For interconnecting service and distant communication uniformity in methods of operation and apparatus is necesary, in fact, imperative. When the first long-distance interconnecting service was established, it could not be used in connection with the then existing exchange service; special lines with special operators had to be provided for those using this service. Now, every exchange line is a long-distance line; every exchange station is the center, for that station, of the entire Bell System. (p. 43.)

With the growth, extension and the co-ordinating of the business there arose other grave and important questions common to all. Questions respecting plant, right of way, licenses, public relations; problems of construction and design of fireproof central office buildings, of plant construction and right of way, of underground conduit and cable construction; commercial problems, and studies of the future relating to the direction of growth and increase; relations with other utility companies, particularly those using increasingly high tension currents—all became of the utmost importance to operating purposes. These questions were important from the standpoint of the service. They involved large expenditure for permanent plant. Their proper solution was of the greatest importance to prevent waste through large expenditure in useless plant. (pp. 43-44.)

The constant change in apparatus, the increase in complexity of the mechanism and in methods employed cause by far the largest expenditure of capital and revenue in con-

struction and maintenance. To control these changes so that new devices and new improvements could be fitted to the old, and only the special parts affected to be wasted or scrapped, required the closest co-operative relations between the operating, experimental and manufacturing branches. The control of the manufacturing branch was necessary. This control and co-operation have reduced obsolescence to a minimum, stopped the scrapping of the entire apparatus, while in old days as was aptly said, "the progress of telephone development was marked by the scrap-heaps." (p. 44.)

Financing this rapid development became one of the serious problems. The interdependence of the systems of the various companies was so great that failure to maintain proper service in any one was to the disadvantage of the others as well as to itself. The demands for service from the public increased greatly the aggregate capital necessary. The difficulty at all times for some of the companies to finance themselves, and the impossibility at times for others, made some systematic and comprehensive and co-operative financial system obligatory. If there were no financial relations between the companies, each would have to carry a large margin of idle capital. Through co-operation in financial matters all could be sure of capital to meet all requirements as they arose, one margin of idle capital could be carried for the benefit of all, and advantage could be taken for all of favorable financing conditions existing for any one. (p. 44.)

Common interest in all these questions, and their complexity, required that they should be dealt with for all, by an administration common to all, and were the reasons for the extension of the central administration of the American Telephone and Telegraph Company to the whole Bell System. *The staff and the co-operation necessary to produce the results which have been obtained, could have been provided for in no other way.* It is in fact an arrangement by which each company maintains a local administration for local matters only, and all questions common to all, or any one question that may affect any one other company, are for the action of the Centralized General Administration. (p. 45.)

For this centralized service, relieving the separated operating companies from the obligation of maintaining anything but an operating organization; for the amortization of the cost and royalties of all the many inventions; for the

maintenance of a legal department at all times at the disposal of, and ready to defend, advise or prosecute for all companies, in all administrative matters; for the maintenance and support of the very complete, extensive and effective technical and engineering department; for the rental and care of the telephones themselves; for the financial assistance; for all the service and the benefit of it all, the operating companies contribute 4½ per cent. of their gross revenue. For the "administration" of the telephone business over this vast country, and for all the benefits that come from a common administration without which vastly greater sums of money would have been expended in operation, vastly greater sums required for construction and vastly greater sums paid for obsolescence; for all the advice and aid in legal and financial matters; for the right to use all inventions necessary and for protection in that right; for all the expenses of administration—after deducting the actual cost of furnishing the telephones and maintaining them at the highest standard—the average contribution by the operating companies to the Centralized General Administration is less than 3 per cent. of their gross receipts. (pp. 45-46.)

DEVELOPMENT OF AND REASONS FOR THE 4½%.

Originally the telephones owned by the Bell Company were leased for a fixed rental payment for particular purposes. Owning and leasing the telephones instead of selling them insured proper maintenance, proper expert care, and the use uniformly throughout the system of only the highest and latest types, all of which was in the interest of the service and of the reputation of the instrument. Where the instruments are owned by users, expert care is seldom given and obsolete types are continued in use—all inimical to their reputation, and detrimental to the service. (p. 46.)

The *rental* of the telephones originally covered only their use for a particular purpose. The only obligation of the Bell Company was to protect the licensee in that use. (p. 46.)

The gradual assumption by the Bell Company of the expenses in connection with the development as set forth above and including it in the "rental" of the telephones, was entirely voluntary on its part. (p. 46.)

The value of an invention is based on its earning power; concentrated service about large centers involves the most

difficult, and expensive problems; the cost of "Administration" is almost invariably proportionate to the amount of business done, the cost of doing business, and the extent and importance of that business. (p. 46.)

As the centralization of all matters common to all developed into a Central Administration for all, and the protection of the business was in the business policy and other inventions instead of telephone patents, the rental for instruments was changed to a percentage on the gross revenue, and this percentage was made to include, both the rental of instruments and the contribution of the operating company to the cost of centralized administration. The term rental and royalties of telephones, however, has clung to the payment, much to the confusion and misunderstanding of those who had to deal with it. (pp. 46-47.)

CONTROL AND REGULATION.

Regulation and control by commissions or busines courts have, so far as anyone can forecast the future, become a permanent feature of our economic laws. Like all new departures from established practice, it could not be perfect from the start. Practice, experience and evolution on the lines pointed out by practice and experience can make perfection. The few years' experience has brought out prominently both good and bad features, but it has demonstrated that there are great possibilities of good and a strong probability if not a certainty that there can be had through them, a satisfactory solution of the economic problems as well as the correction of such business practices, of inherent badness, as were forcing otherwise conservative and right-seeing and right-believing people into the ranks of the extreme radicals. It has demonstrated that if the progress and development of the past are to be maintained, there must be abundant opportunity for individual initiative as well as individual reward for pioneer work. Too often-repeated investigations and inconsequential hearings waste the time of the officials and the revenues of the corporations. Regulation can be too drastic and interfere too much with operating. Neither economy nor efficiency comes from revolutionary methods. Most if not all of the wonderful claims made by exploiters of new ideas and inventions fail to materialize in the cold light of practical application. (p. 47.)

Considered broadly and generally, the Bell System has no cause for complaint, protest or criticism as to its relations with legislatures, commissions, courts, or municipalities. The various associated companies and this Company have been called before those having jurisdiction over their operations to give information and to make answer on many matters, many of them of grave importance. There has been some serious and many frivolous and selfish complaints made which had to be met and which have taken much time and caused large expense to both the investigators and the investigated. With a few notable exceptions from the view-point of the Bell System, right and reason have been the controlling influences in the conclusions reached. There have been fully as large a percentage of satisfactory conclusions arrived at by commissions as would have been in any regular courts of justice. No more could be expected. (p. 49.)

The telephone business is peculiar in that it is the last business to feel depression and the first to recover. When other industries have to retrench, retrenchment is possible with the service of the Bell System at command; it is the cheapest assistant or server that can be employed. (p. 50.)

While the year's telephone business shows an increase, it is not the normal increase; the circle of industrial conditions is out of balance and there is disturbance, and the telephone business is feeling the effect of it. (p. 50.)

Any public service system the use of which is interdependent and interconnecting, such as street railway or telephone systems, can only be of the greatest benefit to the public when the extent of the system and the extent of the district of the interdependent communities which it serves are identical. Just so far as the service is divided between a number of separate systems each serving a part, the community is deprived of the best possible service. (p. 51.)

In any universal service where all the communities tributary to a central district, are to be served with the central district equally and uniformly, the entire service and the cost of that service must be treated as an entirety and the service for the tributary or subordinate parts of the district must be supplied in part at the cost of the whole; the consideration for it being in the contributory benefits of the subordinate parts, to the whole. (p. 51.)

The use of the telephone system from any one station very largely influences the cost of that station. To make a

flat or uniform rate for each station is in effect making the small user pay the costs of the service for the large users; and the result of this is to put the service out of the reach of many to whom it would be desirable and whose connection with the system would be of advantage to all others connected with it. (p. 51.)

Economic laws cannot be ignored. No matter what the political or commercial or practical requirements may be as to separate operating companies or divisions, in order to give a general service extending in each direction as far as conversation will go, all must be controlled by one dominating policy, based on the dominating necessities of all. (p. 52.)

The service of the Bell System as it stands to-day is the result of organization and system, in which every individual member is a free, active and responsible agent within his own sphere of action and the limitations of his duties. Each individual feels that he is an essential and important part of the whole, and recognizes his obligatory relation towards all other parts and his accountability and responsibility and subordination to the organization of which he is a part. (p. 52.)

The organization is based on the principle that while there are local conditions and local requirements as to local operation, there must be one dominating policy and control under which all action will, while moving in its own local sphere independently, move in entire harmony with all and without disturbing the reciprocal relations of any. (p. 52.)

It is a combination of individual self-assertion and freedom controlled by subordination to the common good of all.

The position that the Bell System holds with the public is entirely due to the fact that the Bell service has been consistently built upon the policy of creating a service of such great benefit and advantage to the public, and rendered at prices so well within its value to all—so well adapted to the use of all, as well as being a direct pecuniary advantage to each user—that none are too poor to take advantage of it, and none so independent as to get along without it. (p. 52.)

To this policy, to this organization, and to every individual member of it belongs the credit of making the Bell System what it is—the premier system of the world and the model after which every universal system throughout the world is built. (p. 53.)

AMERICAN TLEPHONE AND TELEGRAPH COMPANY
BALANCE SHEET, DECEMBER 31, 1914.

Assets.

Stocks of Associated Companies	$435,146,228.32	
Bonds of Associated Companies	581,000.00	
Capital Advances to Associated Companies	52,302,180.00	
		$488,029,408.32
Telephones	$ 14,639,872.65	
Real Estate	508,450.42	
Long-Distance Telephone Plant	49,819,064.66	
		64,967,387.73
Cash and Deposits		36,266,757.17
Short Term Notes Maturing in 1915		3,397,060.53
Special Demand Notes		28,774,658.57
Current Accounts Receivable		7,181,721.25
		$628,616,993.57

(p. 58.)

1915

OFFICERS.

Union N. Bethell .....Senior Vice-President
Union N. Bethell .....Director

PLACES REACHED.

The Bell System by its toll lines connects with few exceptions every village or rural community in the United States, and its exchange lines are within the reach of substantially all the residents of rural districts. (p. 3.)

The service has been so improved that a majority of all stations can have dependable conversation with each other regardless of distance; and to all connected with the system the telegraph systems of the country are available. (p. 3.)

There are 196,841 miles of phantom circuits in the Bell System, an increase during the year of 7,279 miles. Particular attention is called to the mileage of "phantom circuits," reported this year for the first time. (p. 4.)

The ordinary telephone connection consists of two wires technically called a telephone circuit, each wire constituting one "side" of the circuit. (p. 4.)

A phantom circuit is a circuit superimposed on two ordinary circuits by so connecting the two wires or "sides" of each ordinary circuit that they can be used as one side of the phantom circuit. In this way three practical talking circuits can be obtained from four wires. (p. 4.)

By using each side of the phantom circuit in the same way, an additional phantom circuit can be obtained and in this way seven circuits can be obtained from eight wires. This "phantom on a phantom," sometimes called a "ghost," is not used commercially, as the gain does not justify the added complications. (p. 4.)

It is the continuing policy of the Bell System to provide out of earnings each year such amounts as represent the estimated wear and tear, absolescence and inadequacy of plant accruing during that year, so that when any plant comes to be retired sufficient reserve has been gradually acquired to meet the loss of capital due to such retirement. Not only is

this a sound and conservative policy for the protection of the investor in Bell securities, but it is the only way by which present telephone users pay for the wear of the plant they are using instead of passing it on to the next generation. Lack of recognition of this principle has caused many a failure in other industries as well as the telephone business, but the principle is now generally accepted and the practice is firmly established by the accounting rules of the Interstate Commerce Commission and the various state commissions. (p. 6.)

AVERAGE OPERATING UNITS OF ASSOCIATED OPERATING COMPANIES.

(See table on page 13.)

The table on page 13 shows average operating revenue and expenses per station, operating ratios, unit plant cost, etc., of the associated operating companies (not including the American Telephone and Telegraph Company's long-distance lines), for the years 1895, 1900, 1910, 1914 and 1915. (p. 12.)

Although there are objections to the use of the subscriber's station as a unit or standard, especially in comparisons of one part of the country with another, yet it is the best unit available and for general comparisons of the whole system from one year to another it gives some idea of the trend of the business. (p. 12.)

It will be observed that both earnings and expenses per station now vary slightly from year to year but are very much less than in earlier years. The expenses per station have in spite of improved wages and increased taxes been kept down by improved methods and greater efficiency all along the line. (p. 12.)

The decrease—from $69.75 in 1895 to $29.80 in 1915—in the average rate or earnings per station made possible by the improvements in apparatus and methods, is largely the result of "measured service," which places the use of the system within the reach of the many who can afford to pay, and would be warranted in paying, for actual use or value of the service to them, but cannot afford to contribute toward the service of others and would not be warranted in so doing. (pp. 12 and 14.)

All the present surplus and reserves, aggregating $223,400,000 is invested in tangible and productive property, the

revenue from which enables the companies to maintain their efficiency without paying capital charges on this amount.

Particular attention is called to the per cent of net earnings and of dividend and interest disbursements to total plant and other assets:

Net earnings to plant and other assets...5.84%
Dividends and interest to plant and other assets 4.76%

(p. 14)

WESTERN ELECTRIC.

The relations between the Western Electric Company and this and the associated companies have been very fully discussed and set forth in previous reports, particularly that for the year 1914. The functions which it performs for the Bell System continue unchanged. (p. 15.)

The manufacturing and business of the Western Electric were operated under an Illinois corporation. Its nominal headquarters and principal factory were in or near Chicago. The actual official headquarters and principal laboratory, warehouse and experimental departments were in New York City. (p. 15.)

To straighten out the anomalous position of the company, and to bring its operations within the actual conditions, the property was transferred, with the consent of every shareholder, to the Western Electric Company, Incorporated, organized under the laws of New York. (p. 15.)

The principal factory will remain in Illinois, and the legal as well as the actual headquarters will be in New York. (p. 15.)

In this statement the book valuation is used, which is considerably less than replacement value and far below any appraisement which the Company would be obliged to accept, either as a basis for fixing rates or for any other purpose, and is well within all official valuations so far as such have been made. (p. 15.)

The low percentage of earnings on the value of the plant and of average distribution to capital represented by securities issued against this plant, should convince the most skeptical that under no possible different conditions could the public get cheaper service. Whether they could get better service must be left to the decision of those who have had the oppor-

tunity of comparing the service of the Bell System with that of other systems either of this country or of the world. (p. 15.)

The company's business for 1915 has been on the whole better than was expected. The sales amounted to $63,852,000, of which $38,394,000 represents sales to the companies of the Bell System, and $25,458,000 represents sales to other customers. (p. 16.)

No prediction can be made with any degree of confidence at the present time as to the effect of the war upon the company's foreign investments. (p. 16.)

The other benefits under our Plan are not required by law, but we believe it is no more than simple justice that the men and women who devote their working lives to the telephone service should be assured of some income when they are sick or come to old age, and that some immediate provision should be made for those dependent on such workers when they die in the service. If justice demands this, its cost is a fair charge against the business, and we so regard it. (pp. 16-17.)

In the three years 1913-1915, inclusive, the expenditures from the Benefit Funds of the Bell companies have aggregated $3,779,896. At December 31, 1915, the reserves for these Benefit Funds aggregated $9,114,329. Some figures for the year 1915 will be of interest: (p. 17.)

Financing for 1916.

As nearly as can be determined from the experience of several years past the normal or average amount of new money required for the development of the Bell System is about $25,000,000 per annum. (p. 22.)

For the year 1916 provision has been made to meet these normal or average requirements of about $25,000,000, and also to pay off the 5% coupon notes of associated companies which mature in April and May of this year by the sale in January of $50,000,000 4½% coupon notes maturing February 1, 1918. Part of these notes are issued by associated companies and endorsed by American Telephone and Telegraph Company and the balance are direct obligations of this Company. (p. 22.)

Legal.

The work of the Legal Department naturally divides itself into two classes. There is first the service which is incidental to the operation of the Long Distance Lines Department of the Company. The routine features of this service include matters pertaining to rights of way and franchises, the adjustment of claims, and the negotiations of contracts, especially those intended to minimize interference due to high tension currents of other companies. (pp. 26-27.)

The second and broader and much more important class of service rendered by the Legal Department is in connection with the general functions of this Company and the work of the associated companies. It is not practicable to give a concise definition of the nature and extent of this general service. It is the purpose of the Legal Department to act as counsel for each of the associated companies, and beyond this, to do whatever may be necessary in order to supplement and facilitate the work of their legal departments. To better quality it to act as advisor to the associated companies, the Legal Department endeavors at all times to keep closely in touch with all questions of a legal, or quasi legal, or economic nature which may in any way become pertinent to the business of the Bell System or to any one of its associated companies. (p. 27.)

To make available for the use of the associated companies such information as is of general interest, the Legal Department issues various publications. These include bulletins published periodically calling attention to current decisions of the courts throughout the United States, which are intended to include references to all decisions in the United States which may be of special value to the legal departments of the associated companies, and also the publication, first in pamphlet and later in book form, of the telephone and telegraph cases, and other cases of general interest, decided by the public utility commissions in this country and in Canada. The statutory laws relating to telephone and telegraph companies are also compiled and published. In addition to these regular publications, there are printed from time to time and distributed special memoranda upon or discussions of questions which are thought to be of particular interest. (p. 27.)

* * * It is the effort of the legal department in a general way to supervise and direct the legal affairs of the entire system, not through an attempt to transact the legal affairs

of the associated companies, but by keeping closely in touch with the transaction of these affairs by them. It is the purpose to render the experience of the entire system available for the benefit of each part of it, to the end that the best possible results may be obtained and that all questions of a general nature involving matters of policy in which the system as a whole is interested, may be disposed of along consistent and sound lines. (p. 28.)

In addition to this general service, special service is rendered to the associated companies whenever it is believed by the associated companies or by this Company that such service will be of value to the associated company. (p. 28.)

The suit of William A. Read and Company, referred to in the last two preceding reports, has not yet been finally disposed of. It is now being tried in the circuit court of Cook County, Ill., and it is hoped that a decision in the case will be reached by that court prior to its adjournment for the summer. (p. 29.)

GENERAL.

The formal opening of the transcontinental telephone line extending from Boston and New York on the Atlantic seaboard to San Francisco on the Pacific, on January 25, 1915, has been followed by the extension of "extreme distance" transmission into all of the states of the Union, by applying these new improvements to the plant of the Bell System. It is now possible to talk from points in any one state to some points in every other state of the Union, while over a very large part of the territory covered by the Bell System it is possible for any subscriber to talk to any other subscriber regardless of distance. (p. 30.)

The necessary changes in plant and equipment will be continued, wherever there is found to be potential commercial traffic, until telephone intercommunication is established over the whole system, in all of the states of the Union. (p. 30.)

Study of needs and requirements, development of apparatus, methods and practices, demonstration of usefulness and practicability, application to the existing or potential demands, account for the very high state of efficiency and great usefulness attained by the Bell System. Every part of the equipment and plant construction and the operating methods have been raised to higher efficiency and usefulness. The

radius of dependable commercial speaking transmission has been very greatly increased, and it is now certain beyond any question that as fast as developed or potential business and social requirements indicate commercial practicability, every section of the country can be put in speaking transmission with every other section, and every subscriber to the Bell System will be able to speak to every other subscriber regardless of distance. (p. 32.)

The results are particularly noteworthy in the emphasis they place upon the tremendous advantage of the Bell System, of its central administration and its centralized control of operating policy and methods, and the work of its departments of operation, construction and manufacturing, and of research demonstration and development, in the field of economics, practice and science. They could not have been obtained without this central co-operative, co-ordinating control of the entire system. The independent efforts of segregated systems would have failed to produce satisfactory results; the duplication of work would have involved confusion and disturbance beyond endurance, and would have called for immense expenditure. (p. 33.)

In the development of the radio transmission of speech, after its possibility had been demonstrated at our own experimental stations, relations with the Navy and War Departments were established. The use of the wireless towers of those departments was placed at our service, and every possible courtesy, convenience and assistance in the conduct of the experiments was given to our staff by all connected with these departments. Besides these radio experiments, the departments were given demonstrations as to the availability of the Bell System and its wonderful potentiality in case of any emergency which would require quick and satisfactory intercommunication between the different departments of the Government and its scattered stations and officers throughout the whole country. (p. 34.)

In case of any trouble requiring any such service, because of the central control of the Bell System, the Government could have at its immediate disposal a plant, equipment and operating staff which for completeness and efficiency would not be possible in any other way. (p. 34.)

This company and its associated companies have been foremost to establish, and propose to continue their efforts to maintain good wages, good working conditions and relations

of the most cordial kind for and with their employees—a fact which has been of the utmost importance to the efficiency of their service to the public. It is believed that discussion and suggestions looking to a fair and reasonable regulation of such relations between 'public utilities' generally and their employees may fittingly come from a company which has had so satisfactory an experience with those engaged in its own service. (p. 39.)

Conclusion.

It is perfectly within bounds of conservatism to say that the American Telephone and Telegraph Company and associated companies were never, as a whole, in a more satisfactory, if as satisfactory a position financially, physically, and particularly from the point of mutual relationship with their employees and with the public. (p. 45.)

The underlying policy of the Bell System was formulated at the beginning of the business, by those who had the perception and imagination to realize the potentialities, and more important, had faith in the possibilities and courage to undertake their development. (p. 45.)

That policy was in effect, "one system" under common control, interdependent, intercommunicating, by which every one at every place could converse with every other one at every other place. (p. 45.)

This policy has been consistently and persistently pursued. So far as the whole country is concerned, such a system may now be considered an accomplished fact. It has been tried and tested by experience. It has been proved good and has been accepted by the telephone-using public as the only one under which they can have satisfactory service. No matter what the technical objections or negligible differences of opinion or theory, it has been, if not formally approved, substantially accepted by all national, state and municipal authorities and boards of control and regulation, and has been adjudicated upon by courts of high jurisdiction, throughout the country, as the only policy or plan by which can be given a service such as the commercial and social requirements now demand. (p. 45.)

There have been many and grave dangers confronting the American Telephone and Telegraph Company and associated companies. The most difficult to control was that arising

from the intimate, exacting and delicate relations with the public, inherent in any 'public necessity,' but peculiar to the telephone service because of the confidential personal relations with its users. The menace of this danger is happily averted in a great degree. The employees of the service who come in close relation with the public recognize that courtesy and patience make their task pleasanter and their relations more agreeable, and the public are fast responding to this silent appeal. (pp. 45-46.)

The greatest danger now safely past and never again possible, was in the promoting speculative boom, which existed in the abundant years which closed the last century.

It was only the policy of one universal interdependent system, persistently followed, and the advantage of the service due to it, that enabled the Bell to maintain itself. (p. 46.)

The necessity of the existing opposition companies, now growing old, to care for depreciation and obsolescence and to maintain a local service at least equal to the Bell service, even to hold their existing position, makes existing duplicating enterprises negligible so far as they affect the present or may affect the future of our business. Under reasonable restrictions, necessary to avoid discrimination against the Bell subscribers, these duplicating companies are now given the use of the toll and long-distance lines of the Bell System to connect their subscribers with the subscribers of all Bell exchanges beyond local and circumadjacent ones. (See correspondence with the Department of Justice in this Company's annual report for 1913). (p. 46.)

Our policy toward them is and will be unchanged. If in any case it becomes the desire of the telephone public that we should, and the public and all authorities acquiesce and it can legally be done, we stand ready to make any reasonable arrangement which will protect the service and the public, and which will not discriminate against the subscribers of the Bell System. (p. 47.)

The financial experience from past efforts, the general sentiment of the public that one interdependent universal system under control and regulation, is sufficient, and more than one a nuisance; the ability of the Bell to furnish any type or style of appartus, establishes the absolute futility, even if it were physcially or financially possible, of any attempt to duplicate the Bell System. Less than a complete duplication would be useless; a complete duplication would be a nuisance. (p. 47.)

In rate making, whether legislative or competitive, there is a general tendency towards uniform rates for all like public services. Uniform rates are necessarily based on average costs over the territory to which the rates apply. These costs may be either determined, accepted or assumed. (p. 47.)

No two systems or independent enterprises of any nature, and particularly of "public service," are like conditioned as to construction, operating, density of traffic and other factors which control cost of operating; consequently there are in large territories, great variations in the causes which affect the numerous costs from which the average costs are deduced. (pp. 47-48.)

Extensive combinations or systems favorably situated or well balanced combinations of units even of wide variation, prosper under uniform rates and will even show good results at "unit" rates no greater than the unit cost of operating on other combinations or systems unfavorably situated or badly balanced. (p. 48.)

Extensive systems badly balanced or independent enterprises unfavorably situated, may be fairly prosperous under uniform rates during periods of great commercial activity, but will be barely self-sustaining in normal times and are in the hands of a receiver in subnormal times. (p. 48.)

This is most forcibly demonstrated in transportation, where there are such extremes in the unit cost of operation on differently situated or conditioned systems and independent enterprises. (p. 48.)

The Bell System is a well balanced, comprehensive system of intercommunication, in which each exchange district is a center of an intradependent system, each of which is superimposed in part over the other, and each of which must be considered in rate making as a whole. (p. 48.)

It is recognized that the value of the telephone service is dependent upon the available service of the entire intradependent system to be reached from any exchange center; that there is and must be great variation in the revenue-producing ability of each separate exchange district and connecting line making up the system; that in rate making all these elements creating this value of service must be recognized and taken into consideration. (p. 48.)

To the extent that these conditions are within the jurisdiction of any rate-making body, they are now generally taken

into consideration, and may be considered to be well established principles. (pp. 48-49.)

There is no public service which is in a better position as to its future revenue than the Bell System, and its strength lies in the fact that it is a well balanced, intradependent, aggregated system made up of many units, interdependent as to service and policy and operation, but intradependent as to common interest and support. (p. 49.)

Our situation is due entirely to the conservatism of the past; and to the making of ample charges against current earnings for depreciation and obsolescence as should be and must be done with any regard for the future. This is now authorized and directed to be done by all bodies of "control and regulation." (p. 49.)

The recognition of these principles and factors as controlling in rate making, guarantees and protects the American Telephone and Telegraph Company and associated companies in reasonable rates, which will enable them to maintain good service by having a satisfied, well paid and interested operating staff; will enable them to maintain and extend their system, increase its universality to the greatest possibility and to place its service within reach of the greatest possible number, although in so doing there will be lines and exchange systems constructed and maintained in advance of the development or even the potentiality of a business that would support these sections independently." (pp. 49-50.)

With a reasonably satisfied public; with a reasonably liberal public; with a reasonably inclined federal, state and municipal control and regulation; without any onerous or unreasonable demands in sight or probable; with a normal business requiring only normal amounts of future capital; with a system sufficiently in advance of existing conditions to meet all possible demands or emergencies; with a business of such a nature that it makes the most economical "servant" for social or commercial intercourse, the first to be employed, the last to be discharged; with an operating staff from office boy to senior executive, from the newest to the oldest, who look upon the system as their system, who are jealous of its reputation and zealous in support of it; who have a keen interest in its improvement and development; who believe that their success and the Company's success are inseparable, who are never satisfied except with something better and who recognize their obligations to the public—with all these, we should look forward with confidence to the future. (p. 51.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
BALANCE SHEET, DECEMBER 31, 1915.

Assets.

Stocks of Associated Companies	$439,376,366.67	
Bonds and Notes of Associated Companies	59,257,084.00	
		$498,633,450.67
Telephones	$ 15,299,000.10	
Real Estate	508,400.42	
Long-Distance Telephone Plant	50,113,061.36	
		65,920,461.88
Trustees—Employees' Stock Purchase Plan		8,795,967.59
Miscellaneous Investments	$ 2,705,000.00	
Special Demand Notes	6,575,000.00	
Current Accounts Receivable	10,463,558.38	
		19,743,558.38
Cash and Deposits		29,870,555.18
		$622,963,993.70

(p. 56.)

On January 1, 1916, there was one Bell Telephone Station to each 11 of the Total Population of the United States. (Back Cover, 1915.)

1916

OFFICERS.

Union N. Bethell .....Senior Vice-President
Union N. Bethell .....Director

To understand the actual operations of the telephone service as given by the American Telephone and Telegraph Company and associated companies, as a whole, the combined revenue and expenses and balance sheet must be considered. (p. 3.)

The associated companies are the operating units, and their statements cover the actual operations in their respective territories; while the American Telephone and Telegraph Company is the central administration, the financing, developing and supervising administration. In its statements of earnings and expenses, the gross revenue is from: dividends and interest upon capital invested in the business through the associated companies; payments of the associated companies towards the maintenance and expenses of the central administration; net revenue of the long-distance lines; and miscellaneous. Its expenses cover only the central administration of the whole system, and none of the telephone service operating expenses. (p. 3.)

Combining the accounts and excluding all duplications and inter-company matters—including interest, dividends and other payments to the American Telephone and Telegraph Company by the associated companies—the actual operations of the service, the actual revenues and expenses, are thereby shown. (p. 4.)

This explanation is made that there may be no excuse for misstating the costs and profits of the telephone service. (p. 4.)

At the end of the year the number of telephone stations which constituted our system in the United States was 9,847,192, an increase during the year of 695,971, of which increase 577,380 were owned by the Bell companies and 118,591 were Bell connected stations. Of the total number of stations in the system 6,545,490 were owned and operated by Bell companies and 3,301,702 by local, co-operative and rural independent companies or associations having sublicense or connection contracts; the so-called connecting companies. (p. 4.)

Attention was called last year to the mileage of "phantom circuits." During 1916, 25,153 miles of "phantom circuits" were added, making 221,994 miles of these "phantom circuits" at the end of the year. These are additional service circuits which can be superimposed on ordinary circuits when there are at least two continuous circuits (four wires or more) for considerable distances, and represent one of the many economic as well as efficient innovations introduced in the Bell System, and only possible in a system where there must be a large number of continuous circuits between distant points. (p. 5.)

* * * As stated in last year's report, it is the continuing policy of the Bell System to provide out of earnings each year such amounts as represent the estimated wear and tear, obsolescence and inadequacy of plant accruing during that year, so that when any plant comes to be retired sufficient reserve has been gradually acquired to meet the loss of capital due to such retirement. This is the sound and conservative policy for the protection and guaranty of the future of the plant, and it is the only way by which telephone users pay for the wear of the plant incident to, or concurrent with their use, instead of passing this cost on to the future users. Lack of recognition of this principle has caused many failures in all industries, and particularly in the telephone business. This principle is now generally accepted and the practice is firmly established by the accounting rules of the Interstate Commerce Commission and the various state commissions. (p. 7.)

The American Telephone and Telegraph Company and associated companies constitute one operating entity, and to understand or correctly determine the actual costs and charges of the telephone service and the ultimate distribution of the revenue, their accounts must be consolidated. (p. 9.)

The following tables show the business for the year of the Bell Telephone System including the American Telephone and Telegraph Company its associated holding and operating companies in the United States, but not including connecting independent or sub-licensee companies, or the Western Electric Company except as investments in and dividends from those companies are included respectively in assets and revenue. All inter-company duplications are eliminated in making up these tables so that the figures represent the business of the system as a whole in its relations to the public. (p. 9.)

The total capitalization, including inter-company items and duplications but excluding reacquired securities of the companies of the Bell System, is $1,497,760,616. Of this, $608,333,979 is owned and in the treasury of the companies of the Bell System, and is represented to the public by the outstanding securities of the American Telephone and Telegraph Company and associated companies. (p. 10.)

The capital stock, bonds and notes payable of the Bell System *outstanding in the hands of the public at the close of the year were* $889,426,637, of which the outstanding securities of the American Telephone and Telegraph Company represent $596,092,719, and outstanding securities of the associated companies in the hands of the public represent $293,333,918. (pp. 10 and 12.)

If we consider the current accounts payable, $38,280,436, against which there were liquid assets, cash and current accounts receivable, of $146,722,409, or an excess of $108,441,973 to the credit of the system, it leaves *as the net permanent capital obligations* of the whole system outstanding in the hands of the public $780,984,664. (p. 12.)

The surplus and reserve aggregating $262,000,000 is invested in tangible productive property, the revenue from which, being free from capital charges, is subject only to operating charges and in this way reduces the cost of service to the public. (p. 14.)

AVERAGE OPERATING UNITS OF ASSOCIATED OPERATING COMPANIES.

(See table on page 17.)

The table on page 17 shows average operating revenue and expenses per station, operating ratios, unit plant cost, etc., of the associated operating companies (not including the American Telephone and Telegraph Company's long-distance lines), for the years 1895, 1900, 1910, 1915 and 1916. (pp. 14 and 16.)

Although there are objections to the use of the subscriber's station as a unit or standard, especially in comparisons of one part of the country with another, yet it is the best unit available and for general comparisons of the whole system from one year to another it gives some idea of the trend of the business. (p. 16.)

It will be observed that both average earnings and average expenses per station which now vary slightly from year to year are very much less than in earlier years. The average expenses per station have been kept down, in spite of improved wages and increased taxes, by improved methods and greater efficiency in every branch of the service. (p. 16.)

Particular attention is again directed to the percentage of net earnings and of dividend and interest disbursements of the associated operating companies to their total plant and other assets; also of taxes paid to the public:

Percentage of net earnings to plant and other assets	6.17
Percentage of charges paid on capital to plant and other assets	4.58
Percentage of taxes paid to public to plant and other assets	1.41

These percentages of earnings and charges compare with 5.84 per cent and 4.76 per cent in 1915. The increased percentage of net earnings for 1916 is not normal, being as it is due to the sudden increase in demands for service without a corresponding increase of plant, a condition under which service could not be satisfactorily given, and which could not be allowed to continue any longer than impossible to avoid. The decreased percentage of dividends and interest to investment reflects a lesser increase in average capital obligations than in plant due to the utilizing of surplus and unexpended reserves for additions to plant and other assets. (pp. 16 and 18.)

The amount distributed for interest and dividends on the outstanding obligations of the associated companies, out of their earnings, constitutes but a small per cent on their plant and other assets, and if the taxes paid are considered the percentage is less than that of any well-secured bond. (p. 18.)

The relations of the Western Electric Company have been attacked from various quarters, and always from the questionable standpoint of self-interest. This relation, which we have described in previous reports, particularly in the report for 1914, is substantially that of a 'manufacturing department' of the business, indispensable to every enterprise which requires the manufacture for its own use of such a variety and magnitude of apparatus and equipment of 'special', highly technical and continually changing character, which cannot be procured or provided for in the open mar-

ket. That this manufacturing should be closely associated with the business as a part, or a division is particularly necessary, the development is continuous, the ideas and suggestions for improvements very largely originate in the operation, in the investigation of the operation, in the course of experimentation or in the course of manufacture. (pp. 18-19.)

No manufacturing company not holding this relation could possibly afford this close co-operation with the operating company, nor could any operating company afford to allow any other manufacturing company such an intimate hold on the development of its equipment. (pp. 19-20.)

Our associated companies are not under any obligation or coercion to buy of the Western Electric Company, but they do buy practically all of their requirements from that company, because they know that its product is made under the above-described conditions. As other companies connect with our system or otherwise become acquainted with these conditions, they are inclined to the same course, but they are neither obliged nor coerced to. For the same reason that the Western Electric Company's product is what our companies want, it is what others want. (p. 20.)

It is contended that this creates a condition which is unfair, in that other manufacturers are unable to sell to the Bell Companies. What is there unfair about any enterprise requiring the expenditure of large amounts of money for highly specialized machinery and equipment vital to its operation maintaining its own manufacture? Why should not the ideas and suggestions originating within the system be worked out within the system itself? (p. 20.)

The statement of earnings of the American Telephone and Telegraph Company represents, in addition to the net receipts of the long-distance lines, only that part of the earnings of the Bell System which is received by the American Telephone and Telegraph Company, out of the divisible surplus of the associated companies from operation, as interest or dividends on money advanced by the Company to finance the associated companies, or as payments by the associated companies to maintain the central administration. (p. 23.)

In any consideration of a statement of the earnings of the American Telephone and Telegraph Company, it is necessary to a proper understanding to know that it does not represent the actual operations of the telephone service of the Bell System. The statement of the expenses of the American Tele-

phone and Telegraph Company represents only the cost of the maintenance of the central administration of the whole system, as explained elsewhere. The disbursements of dividend and interest represent the charges on the securities issued by the Company to finance the associated companies and the long-distance lines. (p. 23.)

As of February 1, 1916, the Company sold $40,000,000 of its two-year 4½ per cent coupon notes and $10,000,000 similar notes of associated companies bearing the endorsement of this Company. It was arranged that up to April 1, 1916, there might be substituted for any part of the American Telephone and Telegraph Company's notes an equal amount of associated companies' notes endorsed by this Company, and substitutions to the amount of $18,390,000 were duly made, so that there were finally outstanding, $21,610,000 of this Company's notes and $28,390,000 of associated companies' notes endorsed by this Company. (p. 25.)

To meet the financing by this Company of the associated operating companies and for other purposes, the Company sold, as of December 1, 1916, $80,000,000 of 30-Year 5 Per Cent Collateral Trust Gold Bonds. Capital stock of the following companies of the par values shown has been deposited with the Old Colony Trust Company, Trustee, as collateral security for this issue of bonds: (p. 26.)

During the year, notwithstanding the delays and difficulties which have been experienced in all industries in conducting engineering and construction work, important progress has been made in applying improvements in construction and equipment to the telephone plant of the Bell System. These improvements have made intra-continental and transcontinental telephonic transmission of speech a commercial actuality, and have also shown that inter-continental speech transmission is a probability within the limitations of the natural physical conditions. These improvements in lines and equipment have increased the range of telephonic speech transmission many fold, and already the cities in the United States of over 50,000 inhabitants, with most of their adjacent and connected towns and territory, have been placed in speaking communication with each other, and brought into the range of extra long-distance service. (pp. 28-29.)

A plant so elaborate and extensive as is the telephone plant composing the Bell System requires the greatest care and most effective methods to maintain it constantly at its high-

est efficiency. This is emphasized in all classes of toll-line connections where there may be hundreds of separate pieces of apparatus in a circuit, a defect in any one of which may destroy a connection; and in the extra long circuits, like the transcontinental line, the highest degree of maintenance is necessary in order to give commercial service at all. (p. 31.)

A break in the tracks of a transcontinental railroad immediately affects only the running of trains in a short section near by and may have no effect whatever upon the schedule of trains a thousand miles away. In the case of the transcontinental telephone circuit, however, a break, whether at New York or at San Francisco or at any intermediate point, would disable the entire line from end to end for all through business. (p. 31.)

Greatly improved methods for maintaining and connecting such lines had to be worked out, improved devices for promptly detecting and locating faults, improving transmission and overcoming obstacles had to be perfected and introduced, all of which have been of the greatest benefit, not only when used in connection with extra long-distance service but also in the local service and on lines of short length, and have proved to be of very great advantage in the service of the Bell System. (p. 32.)

In the handling of traffic over these extra long lines, as well as in their maintenance, new operating methods have been required, that the operators might be able to connect or join together correctly and promptly the numerous sections of line required to make up the long and complicated speaking circuits. Our traffic engineers are successfully meeting these new conditions. During the year, in co-operation with the associated companies, they have studied the traffic conditions in all of the cities of the United States. They have reviewed the operating conditions and have introduced many improvements which have been of the greatest benefit to the service, both long distance and local. (p. 32.)

Each of the associated companies maintains its own legal department and performs for itself the services which are ordinarily assigned to such a department. This work the Legal Department of the American Company does not attempt to do. Its function as a part of the central organization is, in a sense, to act as counsel for the various counsel for the associated companies, and to render to them such assistance as they may require in the transaction of their affairs. (p. 36.)

This assistance may be general, as in the publication of periodical bulletins intended to advise counsel for the associated companies as to current decisions of special interest by the courts and by commissions, or it may be special, in relation to unusual or important transactions which may arise in connection with the affairs of the associated company. (p. 36.)

It is the purpose of the Legal Department of the American Company to keep sufficiently in touch with the legal affairs of the entire system to be assured that the experience of the entire system shall be available for the benefit of each part of it and that all questions of a general nature, as well as all questions of policy, in which the system as a whole is concerned, shall be disposed of along sound and consistent lines. (p. 36.)

It is not inappropriate to restate clearly the attitude of the Bell System towards the public. Repetition of facts prevents misunderstanding, as misunderstanding is based on either misleading, mistaken or meager information. (p. 39.)

The telephone service consists in placing a telephone circuit at the use for personal conversation of parties personally present at distantly separated terminals. To get this service the parties must each be connected with the same system, either through a toll or subscriber's line. It is further unique in that it has no alternate, nothing can take its place. Each circuit is put to the exclusive use of the parties talking and cannot be used for any other telephonic purpose, and the time at which it is used is determined by the convenience of the parties. (p. 40.)

The speaking circuit must be a continuous one. The telephone current is a delicate one, a disturbance at any one point putting the whole circuit out of commission, and as only a small part of the connections is between those connected with the same central office and there are relatively few places between which there is sufficient business to maintain special circuits, these circuits must be made up by connecting circuits and parts of circuits passing through the various exchange districts, which necessitates uniformity in the operating methods and the equipment, principal and auxiliary. All employees engaged at terminal or junction points in making up the circuit must work in perfect harmony and cooperation and take their directions from one source; in fact there must

be that absolute co-ordination of plant, apparatus, employees and methods that can come only from common interest and common direction. (p. 40.)

The telephone system to give perfect service must be one in which all parts recognize a common interest and a common subordination to the interests of all, in fact it must be 'One System,' 'universal,' 'intradependent,' 'intracommunicative,' and operated in a common interest. (pp. 40-41.)

Such is the Bell System.

The original telephone exchange service and the unit of the "Bell System" is the "Exchange District" by which and over which the local service is given without toll charge to every one desiring service within the area comprised in that district. The "Exchange District" is made up of sub-units of central office districts and through the switchboard every subscriber within a given district is connected by subscriber lines. All the central offices in an "Exchange District" are connected with each other by trunk lines. To connect all subscribers in any "Exchange District" with one central office would be a physical impossibility in any considerable district, for the reason that no central office building large enough could be constructed and equipped; the cost of the extra length of wire to carry all to one central office would be prohibitive and the congestion of wires would make it impossible, whereas the number of trunk lines to take care of inter-central office calls is relatively small as compared to the number of subscribers' lines. (p. 41.)

For the same reasons "Exchange Districts" or central office districts do not overlap each other, nor do the subscribers' lines of one district extend into the territory of another district. Any party desiring service can be connected with any subscriber, in a distant or even adjoining district, more economically and efficiently through the central office of his own district and thence by trunk lines through the central office of the desired subscriber. (p. 41.)

The district exchange systems are connected with each other by, and form the terminals of, the toll or long-distance lines which are directly connected with their central offices. (p. 41.)

Without terminals the toll or long-distance lines would be of little use. To build special terminals would be substantial duplication of the exchange lines as nearly every subscriber sooner or later, with more or less frequency, desires to con-

nect beyond the exchange district. Connection and close operating relations between the toll and long-distance lines give service between all points on all exchanges, constitute a system, and are the only solution for universal service. (pp. 41-42.)

There need be no two exchange systems in any district. Telephonic connection can be had only between parties connected with the same general system. Two systems each serving the same subscribers would be a practical impossibility and an economic absurdity. Two opposition exchanges each with a different list of subscribers would give an entirely different service. To obtain the service of both exchanges, connection with each is necessary, which is duplication. If two exchanges are connected they then in fact belong to one system, for each would have the use of the other's facilities for its subscribers, under some arrangement which necessitated cooperation and subordination. It would still be duplication for neither could or would give the service of the other exchange without compensation. (p. 42.)

The inevitable conclusion is one system; one system means no duplication; no duplication means one local exchange system for each separate locality or territory, each connected with the other, all operating as one; this would be cooperation and co-operation can never be competition. (p. 42.)

Could this have been obtained by segregated independent competing local exchange systems each reaching over into the territory of the other, to get at the creamy parts, with all the interconnecting, independent toll or long distance lines, each struggling for its particular advantage? (p. 42.)

This is not a case for argument or opinion now. The "One System" has been created; it is in operation; the public are educated to its advantages; where there are two systems, the public are demanding and public authorities commanding "One System." (pp. 42-43.)

The telephone service is the creation of the Bell interests, working in harmonious cooperation to give the public a new utility, a new convenience. It was given to the public in advance of any demand. The demand was created by the service given.

It was not until after the advantage and the necessity of such service became apparent that there were any opposition exchanges, and it was not until the idea of a comprehensive system became recognized as a public necessity that the op-

position companies demanded connection with the Bell System of interconnecting wires. In other words, the opposition companies wanted to better their position and supply their deficiencies by the use of the facilities constructed for, and needed by, the subscribers to the Bell System. To meet that demand would necessitate additional construction by the Bell System for the benefit of opposing interests. (p. 43.)

The Bell was pioneer in the exchange system, pioneer in the toll line system, pioneer in the long-distance system, and at all times met the incredulity of the public—first as to the possibility of any telephone service, then as to the possibility of anything but a local service, and then as to the possibility of even a short-distance service, and finally, as to the possibility of a long-distance service. While the promoters of the Bell System devoted their efforts to the upbuilding of a system looking to the future, others rushed in to reap the harvest, backed by local interest, local capital, local everything. (p. 43.)

The story might have been a different one had the promoters of the opposition companies followed the example of the Bell interests, and organized a system, a system for the future; had they taken advantage in the beginning of the common experience, of all mistakes as to service, cost of plant, its depreciation and obsolescence, that have been made by all promoters and are being made by all public ownership advocates; and in addition had they recognized that the telephone service had become something besides a local exchange system; that a comprehensive system was becoming a recognized necessity and finally that to hold their position with the public they must give as comprehensive service as the Bell System did. (pp. 43-44.)

The qualities which created the Bell System were self-interest subordinated to public spirit, initiative, vision, imagination, courage and energy in creating a new, serviceable utility, developing all its potentialities, and making all possible improvements. (p. 44.)

The only advantage the Bell interest ever had was through creative work in developing the potentialities of the telephone service by incorporating with advance construction advanced ideas; placing those facilities for service before the public in advance of all others. (p. 44.)

The Bell System was something good, and always something better than any other. It was never resting and always developing something better for the Bell System. (p. 44.)

The Bell idea did not contemplate a monopoly; it contemplated a system and went about the building of it in the only possible way. Telephone service and the telephone system are an evolution; the beginning was the local exchange, following was the connecting of adjacent exchanges, the building of toll lines, the long-distance lines; all interconnecting. What difference could there be whether the separate district exchanges were built directly by the Bell or indirectly through affiliated district companies, organized for local reasons, working in cooperation, harmony, all subordinated to a common interest? Why should it not manufacture for these affiliated associated companies, either directly or through an associated affiliated manufacturing company, its own highly special and technical plant, and in this way have absolute control over quality and character? (p. 45.)

The idea was a great public utility for the public advantage and benefit; the advantage to the originators to come through the doing of this public service. (p. 45.)

Whatever has developed of a "monopolistic" aspect about "one system" is inherent in the telephone service and is created by the public demand educated to the advantages of universal service. (p. 45.)

Was the building of a long-distance line from Boston to New York when every dollar in the Company's treasury had a hundred uses, and when no one had confidence in its practicability, entirely selfish or to be condemned? Was building lines to Philadelphia and Washington and from New York to Chicago before any certainty of their pltimate advantage to the public a grievous sin? (pp. 44-45.)

The long-distance construction was years ahead of everything like use or demand. It took years for the public to become educated to its possible advantages. For the first three years the long-distance lines were operated at a loss, and the gross receipts from long-distance service for its first 16 years were less than for the single year 1916. (p. 45.)

The Bell idea did not contemplate a monopoly; it contemplated a system and went about the building of it in the only possible way. Telephone service and the telephone system are an evolution; the beginning was the local exchange, following was the connecting of adjacent exchanges, the building of toll lines, the long-distance lines; all interconnecting. What difference could there be whether the separate district exchanges were built directly by the Bell or indirectly through

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The field is open and practically has been for twenty-five years. Since the expiration of the fundamental patents, Bell interests have never relied upon their patents—upon which they have expended millions, about $6,000,000 in the last ten years paid to outside parties—except as protection in the pursuit of their business. These patents are broad and comprehensive enough to cover any kind of apparatus used in any telephone service in the world. (pp. 45-46.)

The Bell System was created by the public, and by the peculiarities of the service. It exists because the public patronized it, and the public patronized it because they received a service such as they wanted at a price which was reasonable considering the service; at a price which made it advantageous and profitable to the public. (p. 46.)

The Bell System has no monopoly. One system, universal service, do not mean monopoly of ownership—organized co-operation does not mean monopolistic control. (p. 46.)

If there is a public demand for competition in the telephone service or for opposition exchange, there is nothing to prevent the building, but if opposition companies are built in the particularly "fat" districts of the Bell System, is there any reason why the deficiencies of the limited service of such opposition should be supported by the Bell System from the facilities it constructed for and needs for its own service, or is there any reason why the Bell System should raise capital to build additional facilities not needed for its own service, often unprofitable, to supply such deficiencies? (p. 46.)

There are about 11,300,000 telephone stations in the United States, 6,500,000 Bell owned and 4,800,000 owned by independent companies or associations. (p. 46.)

There are nearly 10,000,000 stations connected with the Bell System, 6,500,000 Bell owned, and over 3,300,000 owned by independent companies. (p. 46.)

About two-thirds of the independently owned stations are connected with and form an important part of the Bell System. (p. 46.)

The Bell System does not make undue profit. Allowing for taxes paid by the system and by the holders of its outstanding securities, the net annual cost to the public for the use of the property of the Bell System is about the same percentage on a fair valuation of that property as the interest return on high-grade railroad or industrial bonds, and is far less than the legal rate of interest in any state. At the same time investors in the Bell System realize a fair return because the outstanding capital obligations are many millions of dollars less than the value of the property. (p. 47.)

The other epoch when the spoken voice was transmitted through the very same instruments from shore to shore and back again across the great continent, soon to be followed by the transmission of the spoken voice from the wireless towers of the United States, through space, to Hawaii on one side and Paris on the other.

From epoch to epoch, note the improvement. What made it possible for the same instruments to do at one time, the impossible at the other? It was the creation of instrumentalities and auxiliaries, the removal of obstacles, the building up of a system for transmission over and by which that delicate current, so delicate that it would have to be multiplied 5,000,000 times to light an incandescent lamp, could be either transmitted or when it became attenuated could be picked up and given new life for another distance until its destination was reached. (p. 48.)

In the evolution of telephony, the telephone is a small part. It is not due to the force generated by the telephone that transcontinental or any distant speech is possible, it is the eliminating of obstacles and the assistance of auxiliary apparatus, it is the making of an easy path. You cannot increase the force at the telephone except to a limited extent, the current of minute volume but great intensity has a disposition to dissipate itself, which destroys its own and confuses all adjacent transmission. It is not the telephone apparatus, central office equipment or wires that independently afford or can afford any service. It is the machine as a whole; all the tele-

phones, all the equipment, all the central offices are vital and necessary parts of that machine. That machine is the Bell System. (pp. 48-49.)

In ordinary industrials and in transportation, there is great elasticity; increased output or capacity can be obtained by overtime, 24 hour days, or by crowding the facilities. As is well known, there is no elasticity to a telephone circuit. The demands for service come at certain hours which are fixed by the social and business habits of the public; by the times when the individual can be personally present and can reasonably expect to locate the distant party desired. Each circuit is, while being used, exclusive to the user, and can be used for no other telephone service. If there are parties waiting to take the circuit immediately following its release, the maximum service of the line can be obtained. If there are no parties waiting, then the interval between the demands is lost. The demand fluctuates hourly from a high peak of load during a few of the busy hours of the day to the very small demand during the recreation hours, and hardly any demand during the sleeping hours. This makes the service load of any telephone system a very low average. This average load will always be greatly increased when there is enough congestion to make the service a slightly deferred service; deferred sufficiently to fill partially some of the non-busy intervals, but not enough to discourage traffic. This is what did happen during the abnormal season. (pp. 55-56.)

The additional plant in use including these large surplus facilities, provided without corresponding capital charges, and there being no increased distribution of earnings to the security holders, the net earnings show a large relative increase, notwithstanding very considerable increases in compensations and other expenses. (p. 56.)

It should be remembered that a normally non-earning surplus plant is a necessity, that in 1916 this plant was by force of circumstances created an earning factor and to that extent the surplus earnings of the system were abnormal. (p. 56.)

There are three principal factors in giving a satisfactory telephone service; a willing, efficient, contented and attentive staff in operating and construction; ample plant and equipment of the latest type and highest perfection, maintained as such by the continued evolution and progress of the service and facilities for giving the service; an expert staff of observers, investigators and experimenters, all brought into

operation, harmonious cooperation and that co-ordination that can be had only by an efficient, attentive and appreciative administration. (p. 57.)

No division, department, branch or group can be either ignored or favored at the expense of the others without unbalancing the whole and creating immediate confusion and ultimate depreciation of service. (p. 57.)

For the support of this, the revenue for the service from the public must be sufficient. The public, to pay this willingly, must be satisfied and receive at least what they deem to be an equivalent. The attitude of the public is determined by the quality of the service and by the attitude of those giving the service and coming in direct contact with the public; upon them depends in a great measure the ability of the Company to recognize services. When this is fully understood there should be no trouble. (p. 57.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY BALANCE SHEET, DECEMBER 31, 1916

ASSETS.

Stocks of Associated Companies	$452,390,925.92	
Bonds and Notes of Associated Companies	68,088,355.35	$520,479,281.27
Telephones	$16,779,577.51	
Real Estate	508,400.42	
Office Furniture and Fixtures	215,902.25	
Long Distance Telephone Plant	53,457,978.24	70,961,858.42
Trustees—Employees' Stock-Purchase Plan		9,153,950.43
Special Demand Notes	$21,520,000.00	
Current Accounts Receivable	15,408,692.94	36,928,692.94
Temporary Cash Investments	$20,000,000.00	
Cash and Deposits	65,237,660.70	85,237,660.70
		$722,761,443.76

(p. 62.)

On January 1, 1917, there was one Bell Telephone Station to each 10 of the Total Population of the United States. (Back Cover, 1916.)

1917

OFFICERS.

Union N. Bethell .....Senior Vice-President
Union N. Bethell .....Director

The Bell System, as a whole, is made up of the American Telephone and Telegraph Company and associated and connecting companies. The associated, or Bell companies are Bell companies by virtue of contract or license arrangements and financial relations. The connecting companies are independent companies, operating in territory dependent upon them for service, connecting with the Bell companies. Besides the separate systems making up the Bell system, there are many independent companies covering, partially or completely, large areas of territory, operating independently of, not connecting with the Bell companies. (pp. 3-4.)

There are in the United States approximately 11,200 separate companies giving telephone service. Of them 37 are Bell companies, 9,129 independent companies connecting with the Bell System, and about 2,000 independent companies not connecting with the Bell System. There are also a large number of rural lines and systems which connect with these companies, 22,299 of which are connected with the Bell System. (p. 4.)

At the end of the year the number of telephone stations which constituted the Bell System in the United States was 10,475,678, an increase during the year of 628,486, of which increase 486,040 were owned by the Bell companies and 142,446 were Bell connected stations. Of the total number of stations in the system 7,031,530 were owned and operated by Bell companies and 3,444,148 by local, co-operative and rural independent companies or associations having sublicense or connection contracts; the so-called connecting companies. (p. 4.)

In addition to these there are about 1,300,000 stations operated by independent companies not connected with the Bell System (p. 4.)

It is difficult to estimate what additions will be made to the plant during 1918. Plans have been made aggregating $90,000,000. This is believed to be the maximum requirement; the probabilities are that much less will be expended. The

Government's desire for the conservation of men, material and money for direct war requirements and the difficulties of transportation because of priority orders and freight embargoes, make the exact determination of the program impossible. (pp. 7-8.)

The American Telephone and Telegraph Company and associated companies constitute one operating entity, and to understand or correctly determine the actual costs and charges of the telephone service and the ultimate distribution of the revenue, their accounts must be consolidated. (p. 8.)

The following tables show the business for the year of the Bell Telephone System including the American Telephone and Telegraph Company and its associated holding and operating companies in the United States, but not including connecting independent or sub-licensee companies, or the Western Electric Company, Inc., except as investments in and dividends from those companies are included respectively in assets and revenue. All inter-company duplications are eliminated in making up these tables so that the figures represent the business of the system as a whole in its relation to the public. (p. 8.)

BELL TELEPHONE SYSTEM IN UNITED STATES.

COMPARISON OF REVENUE AND EXPENSES, 1916 AND 1917.

(All duplications including interest, dividends and other payments to American Telephone and Telegraph Company by associated companies are excluded.)

(Here follows tables for the years 1916 and 1917.) (p. 9.)

In accordance with our previous practice, in making up the combined figures for the Bell System, all inter-company items have been eliminated, and all intangible assets have been excluded, so that the combined surplus and reserves as shown above are considerably less than the sum of surplus and reserves shown on the books of the separate companies. (p. 12.)

The surplus and reserve, aggregating $303,500,000 invested in productive property, the revenue from which being free from capital charges, is subject only to operating charges, and in this way reduces the cost of service. It is also a provision against abnormal depreciation or obsolescence. (p. 12.)

Particular attention is again directed to the percentage of net earnings and of dividend and interest disbursements of

the Bell Telephone System to total plant and other assets; also of taxes paid to the public:

Percentage of net earnings to plant and other assets	5.86
Percentage of charges paid on capital to plant and other assets	4.74
Percentage of taxes paid to public to plant and other assets	1.71

These percentages of earnings and charges compare with 6.70 per cent and 4.74 per cent in 1916. (p. 14.)

* * * It is also necessary that the control of the operating organization shall be absolutely under the authority of the company which is responsible for the service, and it is obligatory on the part of the company to see that such authority shall not be abused and that every employee has immediate and free access to higher authority in case of any real or fancied grievance. (pp. 15-16.)

In view of the many derogatory statements which have been circulated through carelessness or intention, we think it is our duty to reassure our shareholders; we wish to impress upon them the value and security of their holdings. No one can forecast the future, but based on an intimate knowledge of the past, it is within limits to say that there is as much reason for confidence now as there has been. Our business is growing, the public is friendly, the decisions of the boards of control and regulation without exception have been intended to be fair, and have been acceptable if not always entirely to our satisfaction. Our plant has been maintained at the highest state of efficiency. (p. 16.)

Our obsolescence has in great part been taken care of in our maintenance, all of it in our maintenance and reconstruction, and there is a large and increasing reserve against any emergency. We have allotted to these items as liberally as in the past years, and yet in this year of unusual expense our surplus, while not quite equal to previous years, shows a safe margin over all. (p. 16.)

Our shareholders have paid to the Company in premiums about $35,000,000 in excess of par for their capital stock. (p. 16.)

The minimum replacement value of our property, exclusive of intangibles, is far in excess of the book value, and intangibles represent expenditure and have value. Actual appraisals are continually being made by boards of control,

municipal and other rate-making bodies for rate-fixing purposes. They are made by independent appraisers who certainly have no interest in over-valuation. In every case the appraisals have demonstrated the conservatism of the book value. (pp. 16-17.)

The book value of the plant and other assets of the Bell System as a whole, exclusive of intangibles, is over three hundred millions in excess of the outstanding obligations; or a surplus amounting to much over one-half of the share capital obligations outstanding, inclusive of American Telephone and Telegraph Company's and other Bell companies' share capital in the hands of the public. (p. 17.)

The statement of earnings of the American Telephone and Telegraph Company represents, in addition to the net receipts of the long-distance lines, only that part of the earnings of the Bell System which is received by the American Telephone and Telegraph Company, out of the divisible surplus of the associated companies from operation, as interest or dividends on money advanced by the Company to finance the associated companies, or as payments by the associated companies to maintain the central administration. (p. 26.)

The disbursements of dividends and interest represent the charges on the securities issued by the Company to finance the associated companies and the long-distance lines. (p. 26.)

Of the increase in stocks, bonds and notes, $14,639,700 represents the amount subscribed for preferred stock of the Western Electric Company, Incorporated. (p. 27.)

The Engineering Department of the American Telephone and Telegraph Company is responsible for the technical methods and developments of the Bell System, including development and standardization in transmission and in apparatus, in engineering methods and in the materials and methods of construction. In addition, the Department performs specific engineering work for the associated companies at their request, and also furnishes them with expert consulting advice on all engineering subjects pertaining to their work. (p. 30.)

From the beginning of the business the associated companies, operating in the field, have needed engineering information, help and technical advice. This Department has furnished it and consequently the associated companies themselves have not been required to undertake this broad technical development and standardization. (p. 30.)

The general relation of the Legal Department to the associated companies has been maintained unchanged. Each of the associated companies through its own legal department performs for itself the services which ordinarily pertain to such a department. The function of the Legal Department of the American Company as a part of the central organization is to act as counsel for the various legal departments of the associated companies and in this connection to afford them such aid as they may desire in the transaction of the legal affairs of the associated companies. (p. 37.)

It was through no chance that the Bell System was prepared to meet our national emergency, not that any such emergency was anticipated. It was the result of the policy under which the Bell System has grown to what it is, the only policy which could have developed the telephone service as it has been developed. 'Advance,' in every meaning of the word, has been the slogan. The essential feature of the Bell service is preparedness, the essential characteristic is dependency. (p. 38.)

No business or service analogous to the telephone service, as we know it, existed previous to Bell's invention. Not only the business, but the system, the instrumentalities, the methods of operation and the 'services' had to be created and developed. (p. 38.)

Step by step the business was built up by the construction of facilities before the 'services' could be developed and their advantages demonstrated; the facilities over which 'services' had first to be given, their defects pointed out and their remedies suggested. (p. 38.)

Each step in advance was followed by improvement in quality of service and by additions to kinds of service.

To make "services" acceptable and of their greatest value the facilities for them and the availability of them had to be abundant and dependable.

To avoid piecemeal construction and frequent reconstruction, and also to anticipate and encourage growth, the future was studied, the probabilities determined, the development planned, and the construction to take care of the future was completed or partially completed in advance of the requirements.

This advance construction has justified itself many times in the past two years. (p. 38.)

Step by step as the telephone art has been unfolded has the telephone service been developed from the limited service of an isolated local exchange to a system practically without boundaries; from an interconnecting toll service of limited extent and uncertain performance, to wire communication which is bounded only by continents, and wireless communication which is serving a great purpose in our national emergency, and which will when normal conditions make it possible, be made world-wide in its availability. (p. 38.)

To the engineering, manufacturing and construction organizations of the Bell System large credit is due for the progress and development which have taken place. Around these organizations are centralized and co-ordinated all the research and experimental, scientific and mechanical studies and work, all the development and practical application of new ideas, and all manufacturing and construction. From a start of modest proportions these organizations have grown apace with the growth of the system until today they are foremost in the world of their kind in size, in importance and standing of their personnel, and certainly foremost in the world in accomplished results. (pp. 38-39.)

The telephone system furnishes the transmission of the speaking voice. It puts the caller in connection with the distant party; the connection can be made only after both parties are present at their telephones. If the party called fails to respond, if the party calling fails in any part, keeps the connection waiting after being made, if the parties have not good telephone voices, the utmost perfection on the part of the telephone system will not overcome their shortcomings; nor will absolute perfection on the part of the users give good telephone service if there is imperfection in the transmission facilities. (p. 41.)

This necessity of co-operation, of the co-ordination of the parties speaking and the system, is no creation of the system, it is the inherent characteristic of the service which constitutes its greatest value. There is no form of communication so complete, so satisfactory, as personal conversation. All that the telephone system does is to extend the range at which personal conversation can be carried on by making a path for the voice over the wires, by supplying in effect a direct circuit from any one of the hundreds or thousands, or hundreds of thousands of subscribers in any exchange territory to any other in the same exchange territory, or to any of the millions within range of speaking transmission. (p. 41.)

In any exchange the circuits radiate from a particular position of some particular operator at a switchboard in a central office. That immediate service may be given, every other circuit in that exchange and every telephone circuit on the whole system must be within reach of every operator. This necessitates an involved, intricate, bewildering arrangement of trunk and connecting lines, signals, switches, connecting cords, magnets, relays, secondary switches, selective devices, repeaters, amplifiers, and operators, automatically, as it were, set in motion by each call. (p. 41.)

Such are the conditions under which all telephone service is given; the larger the exchange, the greater the distance, the greater are the complications. (pp. 41-42.)

Every word or act of every individual, instrument, current or device concerned in the operation must be regulated and controlled. Employees and apparatus must act automatically, instinctively, and be free from all other obligations or duties. For these reasons all conversation or inquiry from subscribers not required by or pertaining to a particular connection, is referred to special employees whose sole duty it is to take up all such questions. To attend to such matters would burden and divert the line operators' attention and delay other subscribers. With these conditions in mind it is easy to understand the absolute necessity for a strict observation of the rules of standardization, the subordination of the individual to rule and regulation, and the absolute impossibility of having any outside or independent control of the operating force. Loyalty to the service and to the public must come first. (p. 42.)

Some may think that this destroys individuality and initiative; quite the contrary. Every act being thoroughly standardized becomes instinctive, does not exhaust and leaves the mind active and observant. This is the reason why there are so many instances of telephone operators rendering incalculable service by calling attention of the proper authorities to departures from the standard, to irregularities that indicate something unusual. It is a well established fact that there are no other employees in the world who so quickly and efficiently respond in emergency and do the right thing and do it from no other impelling cause than a conception of duty. (p. 42.)

Service such as our public demands could not be given by or through a number of separate systems without close and dependent relations. Imagine the chaos of the employ-

ees of each separate company neither owing nor owning any allegiance, except to their own system and their own subscribers, fighting for precedence and for circuits. (p. 42.)

The problem of wire communication is quite different from that of any other utility. To be understood, its interrelations, its relations to the Government and to the public must be made clear. (p. 43.)

There are for telegraph and telephone operation entirely separate and distinct systems, each covering the entire country with close working arrangements beyond the borders. Each of these systems is an aggregation of separate sectional systems which by contractural relations, common ownership or connecting contracts has been brought into one operating system under common control. Each of these systems forms a universal, interdependent, intercommunication system; over the telegraph system any telegram can be transmitted, and over the telephone system personal conversation can be had between practically any two points in the United States and Canada. (p. 43.)

Besides these there are other telephone and telegraph systems of greater or less extent, which in the territory they serve are of equal importance and efficiency. (p. 43.)

The great advantage of any comprehensive system is the ability to give continuous service from origin to destination and to route traffic so as to avoid any local congestion or the more serious delays caused by storm or flood. (p. 43.)

This is our reason, not excuse, for again repeating much that we may have many times said about the fundamental policies which underlie the development of the Bell System, and which are in our opinion indispensable to that efficient and sufficient public service necessary to future progress and the continuity of public prosperity. (p. 47.)

"The underlying principles of public service which should guide in its regulation and control are:

"Any particular utility 'Service,' which to be complete depends for its performance upon the facilities of several independent or distinct systems, over or by which part of the particular 'Service' is performed, can be more efficiently and economically performed if all the systems participating in such 'Service' are combined into one co-operative, co-ordinated system, operating under one policy. Such a system should be co-extensive with the territory over which the service extends. (p. 47.)

When any system is giving or can be made to give a complete, sufficient and efficient 'Service,' it is uneconomical and both directly and indirectly detrimental to the best interests of the public to allow any duplication or partial duplication of that system. (p. 47.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
BALANCE SHEET, DECEMBER 31, 1917.

Assets.

Stocks of Associated Companies	$489,148,443.05	
Bonds and Notes of Associated Companies	119,786,058.91	
		$608,934,501.96
Telephones	$ 18,088,289.24	
Real Estate	509,147.42	
Office Furniture and Fixtures	255,231.46	
Long Lines Telephone Plant.	65,084,543.39	
		83,937,211.51
Trustees—Employees' Stock Purchase Plan		4,611,478.63
Special Demand Notes	20,394,800.52	
Current Accounts Receivable	19,876,721.82	
		40,271,522.34
Temporary Cash Investments	$ 2,176,340.00	
Cash and Deposits	23,064,401.51	
		25,240,741.51
		$762,995,455.95

(p. 54.)

On January 1, 1918, there was one Bell Telephone Station to each 10 of the Total Population of the United States. (Back Cover, 1917.)

1918

OFFICERS.

Union N. Bethell .....Vice-President and Director

PLANT ADDITIONS OF PREVIOUS YEARS.

The Bell System, as a whole, is made up of the American Telephone and Telegraph Company and associated and connecting companies. The associated, or Bell companies, are Bell companies by virtue of contract or license arrangements and financial relations. The connecting companies are independent companies whose telephone systems cover territory dependent upon them for service, connecting with the telephone systems of the Bell companies. Besides the separate systems making up the Bell System, there are many independent companies whose telephone systems cover, partially or completely, large areas of territory, operated independently of, and not connected with the system of the Bell companies. (pp. 3-4.)

The net amounts added in nineteen years have been as follows:

1900.....	$31,619,100	1910.....	$53,582,800
1901.....	31,005,400	1911.....	55,660,700
1902.....	37,336,500	1912.....	75,626,900
1903.....	35,368,700	1913.....	54,871,900
1904.....	33,436,700	1914.....	50,045,300
1905.....	50,780,900	1915.....	32,863,700
1906.....	79,366,900	1916.....	66,224,700
1907.....	52,921,400	1917.....	118,599,500
1908.....	26,637,200	1918.....	77,922,600
1909.....	28,700,100		

making a total for the nineteen years of $992,571,000. (p. 6.)

The American Telephone and Telegraph Company and associated companies constitute one operating entity, and to understand or correctly determine the actual costs and charges of the telephone service and the ultimate distribution of the revenue, their accounts must be consolidated. (p. 7.)

The following figures show the business of the Bell Telephone System, including the American Telephone and Telegraph Company and its associated holding and operating companies in the United States, but not including connecting independent or sub-licensee companies, or the Western Elec-

tric Company, Inc., except as dividends from those companies are included in revenue. All inter-company duplications are eliminated so that the figures represent the business of the system as a whole in its relation to the public. (p. 7.)

To the 112,420 stockholders of record shown above there should be added some 14,000 employees of the Bell System in all parts of the country who are paying for stock out of their wages at the rate of $2 per share per month. (Several thousand employees have already paid in full for their stock, and are now stockholders of record.) Counting these and also those persons whose stock is held for them in investment trusts and the like, there are probably at least 135,000 actual owners of stock in this Company. (p. 19.)

That part of the plant of the Bell System against which there are no outstanding obligations and which has been paid for from unexpended reserves and the surplus earnings and share capital premiums, is at the lowest estimate equal to one-third of all the outstanding obligations, or 60 per cent of the outstanding share capital of the Bell System. Deducting from our interest and dividend payments the taxes paid by our system, the rate of the fixed capital charge against the property is less than that paid by the Government on any of its Liberty Bonds. In the history of the Company, there has been no year which did not show a surplus after all necessary requirements were met. (pp. 19-20.)

NOTE: The Engineering Department of the Bell Telephone System includes the American Telephone and Telegraph Company and associated companies and Western Electric Company, Inc. (p. 20.)

During the year 1918 heavy responsibilities have rested upon the engineers of the Bell Telephone System. (p. 20.)

During the period that has elapsed since the license contracts were originally made, in order to adjust them to the development of the business and to the relations between the companies, these contracts have been modified in various respects as shown by letters, by written agreements and by the practice of the parties evidenced by a continued course of dealings between them. In the past year these contracts have been re-written, the definite purpose being not to make new agreements, but simply to evidence the contractual relations now and heretofore existing between the parties by a single, complete instrument. Some of these contracts as so re-written have been executed, and the remainder are in process of closing. (p. 31.)

GENERAL.

GOVERMENT CONTROL.

For the information of the shareholders the terms of the contract are presented.

The principles adopted as a basis of compensation were:

First. Any compensation fixed for the period of control was to be considered as compensation for an emergency period and not in any way considered as establishing a value for the property.

Second. The operation of the property is to be continued on a basis of efficiency relatively equal to that of the past.

Third. The property is to be fully maintained so as to be turned back to the Company as good as when received.

Fourth. Appropriation from current revenue for depreciation and obsolescence to be the same as the past—an average of 5.72 per cent on the fixed capital—amortization of intangible capital to be relatively equal to the past. All unexpended balances from both to be invested in the plant of the System. Charges against depreciation reserve to be in accordance with the rules of the Interstate Commerce Commission. (p. 33.)

Fifth. Employees' pensions, disability benefits and death benefits now in operation to be continued.

Sixth. All taxes, municipal, state or federal, to be paid or reimbursed if paid by the companies, by the Government.

Seventh. The license and rental contracts between the American Telephone and Telegraph Company and the licensee companies to be continued, and the American Telephone and Telegraph Company is to give such advice and assistance as the Postmaster General may require, is to maintain its scientific, technical and engineering departments, its patent protection for the benefit of the property in the same manner as heretofore. The Postmaster General to have the benefit, during the period of control, in the operation of the wire system, of all inventions, discoveries and ideas which may now or hereafter be controlled by the Bell System. (p. 33.)

These provisions are for the protection of the property, the service and the art, and provide for the continuation of the service and for the continual development of the art, as well as the protection of the developed situation, and are for the full protection of the public in its service and the proprietors in the property and development. (p. 34.)

For the security holders is provided:

(a) Payment of the interest and existing amortization charges on all outstanding securities or obligations of the Bell System in the hands of the public, including the 6 per cent convertible bonds issued August 1, 1918.

(b) Payment of dividends at the existing rate upon the share capital of the Bell System outstanding in the hands of the public.

(c) Payment of any charges, interest, dividends on new securities or share capital issued in discharge, conversion or renewal or extension of present obligations. (p. 34.)

For extensions to property:

As provided above, unexpended depreciation shall be invested in property of the System.

American Telephone and Telegraph Company surplus shall be invested in its property.

Surplus profits from operation may be invested by the Postmaster General.

If securities or capital can be issued at fair terms, the Bell System will issue its securities if desired, but the nominal value of the securities shall not exceed 80 per cent of the amount expended in the property.

Extensions to its property made within the approval of the Bell System by money furnished by the Postmaster General shall be paid for in installments of 5 per cent per annum after the period of control ceases. (p. 34.)

Extensions by the Postmaster General to meet abnormal conditions and made without the approval of the System shall be appraised by the Interstate Commerce Commission at the end of the period of control, and their value to the System as appraised shall be paid for in installments of 5 per cent per annum. (p. 35.)

The supervision, possession, control and operation of the "Telephone System," known as the Bell System, assumed

by the President, acting under authority of the joint resolution of Congress, is in no sense permanent nor can it be likened to a sale and purchase. It is very temporary in its nature, for the property is to be returned after a limited period. The necessity of ample time to prepare for common supervision of operations was recognized and cared for in the order of the President which continued temporarily the operation in the hands of the existing organizations. (p. 35.)

The Bell System is unique among all other systems of utilities of necessity, particularly in its own field. No other system of utility of necessity depends so much upon the exceptionally high personnel of its organization for the maintenance of the quality of, or the continuity of improvements and advance in, its service. In extent or comprehensiveness there is no other telephone system comparable to it. It is a nation-wide, universal system complete in itself. Its administrative and operating organizations cover the whole telephone field of activity and the plant and equipment division of the telegraph field. (p. 35.)

If all the other telephone systems of the country, not now connected or associated with the Bell System, were incorporated, the addition would be but a little more or less an ordinary year's growth and would not in any degree change the organization. (p. 35.)

The operating organization of the Bell System upon which depends the service rendered was not created in a limited time or for a temporary period. It is composed very largely of trained technical experts whose education is a matter of years; it is special to the business and there is no large reserve of other and similar occupations to draw from. An important part of this organization is its department of research, investigation and experimentation. The plant, equipment, methods and all that contributes to telephone service, are in a state of evolution, and that evolution is so continuous, so interrelated with the past, and in such various stages of progress from the nebulous suggestions and embryonic ideas to actual accomplishment and application to service, that a continuity of this evolution under the same direction and through the same organization is a case of "self-preservation" to the existing state of the art, and is a guarantee of its future protection. (pp. 35-36.)

For these reasons, in making any arrangements between the Government and the system covering the temporary

period of control, the first consideration was preservation and conservation of the property and its organization. Monetary compensation was quite a secondary matter. (p. 36.)

The American Telephone and Telegraph Company and associated companies, although separate and independent entities, domiciled in the respective States in which they operate telephone systems, are connected by means of toll and long-distance lines and a central co-ordinating and supervisory organization into one comprehensive intercommunicating system—the Bell System. (p. 37.)

As the Bell System, from the nature of its services, the extent and magnitude of its system, is by far the largest and most comprehensively organized of all the wire systems, any terms of agreement which would apply to the Bell System would apply generally to the others. For this reason the Postmaster General desired to make one agreement covering the entire Bell System, to make one which would contain the fundamental points common to the agreements with other systems, and to make that the first agreement." (p. 37.)

* * * The current expenses also included the so-called 4 1-2 per cent payment. Included in this payment and forming a substantial part thereof is the purchase, maintenance, depreciation and obsolescence of all telephone instruments used by the Bell System. This payment also covers all that extensive work which is an essential, inherent part of the operation of the system as a whole or of any system of its magnitude and comprehensiveness, and its cost must at some point be included in the operating expenses. Being common to the whole system, it must be co-ordinated under one policy and one control; that is, a centralized control. It cannot be carried on by each separate company without excessive cost, duplication, confusion and destruction of standards. It constitutes virtually a central administration of the Bell System, having supervisory charge of all matters common to all operating companies and co-ordinates them with activities, such as legal, finance, commercial and construction engineering, technical, general accounts, statistics, plant and traffic standards, and all other interrelations; and directly having control of what might be termed the creation, the development and the maintenance of the state of the art, the expenditures for the research, investigation and engineering departments in the development of new inventions

and methods of operation, in the purchase of, or the acquiring licenses under, patents, without which the state of the art would be at a standstill, and the progress of the business would be paralyzed. The work covered by the payment has produced the present telephone service in its breadth and extent and its recent wonderful applications. It has also made possible applications to submarine and aero operations which have been of inestimable value in this war. It is conservatively estimated that the work of the departments is now saving the Bell System at least $50,000,000 a year in construction and operating costs. (pp. 38-39.)

The Bell System, including the connecting companies, represented the only comprehensive, nation-wide telephone service, comprising as it does 90 per cent of all telephone stations and 95 per cent of all the toll lines and of all the telephone business of the United States. It is the only system furnishing any other than a local service restricted to a limited outside service. It is the only wire system which maintains a large organization entirely devoted to the development of the art. It is the only wire system which has any extensive combination of telegraph and telephone service and the only wire system that has made any pronounced additions to the art of electric transmission, 'land, cable or aero,' of late years. Not including connecting companies, it has nearly 23,000,000 miles of wire used for exchange purposes, over 3,000,000 miles of connecting lines used for telephone and telegraph business, nearly twice as many miles of long-distance wires suitable for both telephone and telegraph as all telegraph companies combined. In its organization there are employed, exclusive of the connecting companies and the Western Electric Company, Inc., over 200,000 employees. While this is all well known, its importance is possibly not fully appreciated in connection with an operating organization for a unified system. Unlike other utilities, there is no outside source from which to draw skilled and experienced employees. While there are many executives of capacity and ability in the telephone field outside of the Bell System only in the Bell System are there any who have as yet by trained ability and actual performance acquired the necessary experience to administer a nation-wide system. No new organizations to carry on the operations could be created or substituted within the limited time of government control, and no matter what changes or improvements could be worked out any sudden, radical changes in

the organization or revolutionary methods in the operation would be fatal to the service. It seems as though conditions existing determined the general character of the organization. It would be impossible that such an organization should not be given prepondant consideration in the making up of what must necessarily be temporary operating organization; not to do so would be disaster. The Postmaster General recognized this but also recognized that there was an equitable consideration which must be given to all the other systems and their organizations. (pp. 46-47.)

* * * There can be no satisfactory or evenly adjusted control and regulation of systems of 'utility of necessity' more or less interdependent, operating in more or less the same or contiguous territory and controlled by economic conditions common to all of them, when such systems are from physical and other reasons very unequally situated and conditioned as to facility or difficulty of construction and operation and have a very unequal dependent or contributing traffic. (p. 57.)

All systems of similar utilities operating in more or less the same or contiguous territory should be combined into one or more well balanced systems, the extent of which should be determined by the nature of the service, by the extent of the service rendered, and by commercial geographic and economic reasons. (p. 57.)

The operating organization should be adapted to the requirements of the service, and established on the lines which experience, enterprise and operation in the industrial world have shown to be effective, efficient and economical. (p. 57.)

With the administration of such systems should be combined in some manner, and as far as possible divorced from political, partisan, or class influence, and subject to reasonable review, the requisite power and authority under legislative mandate to equilibrate capital charges, operating costs and revenue. (p. 57.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY BALANCE SHEET, DECEMBER 31, 1918

ASSETS

Stocks of Associated Companies	$537,761,845.61	
Bonds and Notes of Associated Companies	104,256,700.00	$642,018,545.61
Telephones	18,988,928.58	
Real Estate	509,267.36	
Office Furniture and Fixtures	288,162.33	
Long Lines Telephone Plant	75,450,890.26	95,237,248.53
Trustees—Employees' Stock Purchase Plan		1,226,000.25
Special Demand Notes	21,583,412.10	
Current Accounts Receivable	7,469,934.16	
Accounts Receivable—in Suspense †	15,300,559.94	
Deferred Assets*	1,002,156.16	45,356,062.36
Temporary Cash Investments	5,642,974.94	
Cash and Deposits	31,675,902.78	37,318,877.72
		$821,156,734.47

(p. 58.)

On January 1, 1919, there was one Bell Telephone Station to each 10 of the Total Population of the United States. (Back Cover, 1918.)

1919

In the mind of the public, the Bell Telephone System means the great national network of toll lines, local exchange lines, switchboards, buildings and other telephone property which together afford facilities for connection between any two telephone stations out of over eleven millions in the cities, towns and rural districts of the United States. In this System your interest is large and controlling. (pp. 5-6.)

Your company owns directly the long trunk toll lines joining together the territories operated by its associated companies and through their local plant and service bringing all telephone stations into direct connection with other parts of the System. It owns directly and indirectly 89 per cent of the stock of these associated companies. The companies of which it owns practically all of the profit-sharing stock produce 75 per cent of the revenue. Of the others, it owns a majority in three and a substantial minority in two. These companies are the successors of the original licensees under the Bell patents and they are now in contract relations with this company. Under these contracts this company furnishes to the associated companies the telephone instruments used by them, and also licenses the associated companies under the many important patents now owned or controlled by it, and agrees to license them under all patents hereafter acquired. The contract also provides that this company shall continue its research and development work for the benefit of the associated companies, and shall render to each of them services in connection with its executive, financial, legal, engineering, accounting and other operating functions. (p. 6.)

Your company also owns other obligations of the associated companies.

The direct obligations of the associated companies in stocks, bonds and notes owned by your company, are shown in its balance sheet. In some localities our associated companies have no exchanges, but connect with local companies, which we call connecting companies, occupying these fields. This company has no permanent direct financial interest in these connecting companies, but, through its stock ownership in the associated companies, is indirectly interested where the associated companies hold their securities. (p. 6.)

This Company also owns over 97 per cent of the profit-sharing stock of the Western Electric Company, Incorpor-

ated, which is the manufacturing and supply organization of the Bell System, and it also holds a minority interest in the Bell Telephone Company of Canada, with which its toll lines connect. (pp. 6-7.)

The System, although made up of many separate corporate entities, operates as one organization and enjoys the benefits of one organization: Unity of purpose, standardization of material and methods, a single manufacturing, purchasing and supply department, and a uniform policy. (p. 7.)

The approach to a single ownership in these corporations has been of advantage both to stockholders and the public, independently of operating advantages. No local public utility has unvarying good fortune. In times of bad fortune, its stockholders participate and the utility is likely to be hampered in giving service. With a utility of national scope, occasional local variations in conditions, if only temporary, have hardly an appreciable effect either on service or on revenue as a whole. (p. 7.)

The General Organization of this Company is the headquarters organization of the System. Later in this report the activities of its various departments will be described. Without such a central organization, the accumulated experience of all of the associated companies could not be made available for the service of any one. By co-operation, all experience is not only made available, but is so applied as to make a comprehensive and co-ordinated system, capable of giving universal service. The personnel is stronger and more specialized than any individual company could maintain; and the records and data are invariably more extensive. Questions which can be dealt with once for all by a central organization are so handled as to avoid the duplication and multiplication of effort which would follow if each associated company undertook to perform these functions for itself. (p. 7.)

The organizations of the associated companies and of the Long Lines Department of this Company are the operating organizations for their territories. (p. 7.)

Initiative is encouraged in all parts of the System, but it is the special function of the headquarters organization to select, by study and trial, the best in methods, materials and plans for the benefit of all. (p. 8.)

Important contributions have been made during the year by our Department of Development and Research in the direc-

tion both of economy of plant and of increase in the scope of service. (p. 10.)

The war has emphasized the value to the country both of purely scientific and of industrial research. This company has long recognized the importance of both. The discoveries of Faraday and Henry made the inventions of Bell and Morse possible. The company has in the past and again in this year made contributions to scientific institutions for the purposes of research, under arrangements which insure benefits to the System and to the public. (p. 10.)

Reference has been made in previous reports to the suit of W. A. Read and Company. As an incident of that litigation telephone properties in Ohio, Indiana and Illinois representing an investment of about $60,000,000 were sequestrated and placed under the control and operation of Receivers. It was decided that it was for the benefit of the stockholders that the suit be settled in order that the properties might be restored to our management, and action was taken accordingly. This settlement is being amply justified by results. (p. 10.)

During the year the Headquarters Organization has been rearranged, broadened and strengthened. (p. 11.)

The Department of Operations, besides having direct charge of the Long Lines Department of this Company, now combines all the functions of the headquarters organization pertaining to the operation of the Bell Telephone System, its relations with the public, with other operating companies and with Governmental and civic bodies. (p. 11.)

In this Department are:

Vice-President Edward K. Hall, formerly Vice-President of one of the associated companies, who has charge of matters pertaining to general conditions of the personnel in the operating departments and who is Chairman of the Benefit Fund Committee. (p. 11.)

Vice-President Eugene S. Wilson, formerly General Counsel of a group of associated companies, who has charge of matters connected with revenue and the general policy of presentation of rate cases before rate-controlling bodies. (p. 11.)

Chief Engineer Bancroft Gherardi, formerly Engineer of Plant of this Company, in charge of the Engineering Department, is responsible for the preparation of the construction

program, the technique of construction, maintenance and operation, and the calculation, classification and application of rates. (p. 11.)

In commercial work, telephone rates are being constantly studied not only to insure the necessary revenues but also to do this by devising rate systems that, through the equitable apportionment of charges, will encourage the widest practicable use of telephone service by the public. This requires great care, under the complex operating conditions now encountered, if the rate plans are to permit the simplest operating methods and economy of plant, and prevent misuse and congestion of facilities. The associated companies are assisted in making surveys of the commercial, industrial and social conditions that determine the present and future market for telephone service in the various cities. These surveys are made to determine the extent and direction of the use and growth of telephone service, in order that plans may be made for the economical and adequate extension of the plant. (pp. 12-13.)

In common with other businesses conducted on a large scale and over wide areas, standard accounting and statistical practices play a large part in the successful administration of the Bell System. Good accounting is vital to furnishing complex, constantly-developing and nation-wide telephone service. The Department of Account and Finance as part of the central organization and hence acting for the associated companies collectively (as well as individually in special matters), develops the accounting and statistical methods in use throughout the Bell System. This function of the central organization ensures uniformly correct accounting results under the basis system of accounts prescribed by the Interstate Commerce Commission; likewise it develops the most efficient and economical procedures for the handling and measuring of the millions of large and small transactions, many of an intricate character which the associated companies encounter each month. These accounting and statistical services embrace the issuance of printed routines and other forms of advice which treat of all phases of telephone accounting principles and practices and of telephone statistics; origination of printed forms, reports, and methods; dealings with the Interstate Commerce Commission (in all accounting and statistical matters); complete audits of the associated companies' general books of account and certification as to

the honesty and accuracy of the companies' records and financial condition; cost investigations relative to telephone supplies; together with a wide range of related activities having to do with the new problems which continually present themselves. (p. 14.)

Acting as it does for the Bell System collectively, the Department of Accounts and Finance is enabled to employ a highly developed corps of specialists whose breadth of view and grasp of sound telephone accounting, statistical principles and practices, and business economics, give assurance of the integrity of the accounts as stated and of the statistics as developed, as well as of the efficiency of the processes by which the accounts and related data are built up. These accounting results and statistical presentations, from the initial summaries to the final form, are of inestimable value in the administration of the business. (p. 15.)

Automatic Switchboards. During the past year the Engineering Department has been engaged in planning and directing the introduction of machine switching or automatic switchboards into the Bell System. It is our plan to study each improvement in apparatus to determine how it can most economically be made a part of the plant. Such studies show that in the large cities machine switching equipment should be employed for extensions necessary to provide for growth and for reconstruction to replace worn out equipment. Our experience has shown that by this procedure we are enabled constantly to change to new types of apparatus as they are developed, with the least amount of disturbance to the service in the minimum time and without disturbing effects upon the employees or on the financial situation. Thus loss and waste incident to sudden change are avoided, apparatus not sufficiently proven in is not incorporated into the plant and the entire physical property of the system is by easy evolution keeping abreast of the development of the art of telephony. (p. 17.)

By the use of these automatic switchboards as we have planned to introduce them, increased capacity will be provided with proportionately small increases in the number of operators required and with a simplification of the service conditions in the large cities. While these automatic switchboards are more expensive in first cost than the manual switchboards, it is *expected* that the decreased operating

expense of the automatic will do much to offset the increasing cost of giving telephone service. (p. 17.)

Labor Saving Construction Machinery. Of special interest at this time because of the shortage of unskilled labor is the application of labor saving devices to telephone plant construction. Pole hole digging and pole setting machinery mounted on and using power from auto trucks has been tried out and is available for use. Many other mechanical labor saving devices are being constantly studied and adapted to the needs of our business. (p. 18.)

Among telephone operators there was a labor turnover of about 25,000 in the best pre-war year, 1915, and this rate was low in comparison with other large employers of labor. Under war conditions the labor turnover increased greatly in all industries, and among our operators it reached a rate of 80,000 a year. The adding of so many inexperienced people to the operating forces has reacted seriously on the service, particularly in the larger cities where it takes a long time for new employees to become expert. The turning point has been passed, and during 1919 we added more people to the operating forces than we lost during that period. (p. 20.)

Every resource of the Bell System is being brought to bear upon the service problem. In all cases the falling off in the quality of telephone service has been stopped, in more than half the cities of the country the service has already been restored to normal, and with few exceptions an improvement has already been effected at the remaining places. It is clear from what has already been accomplished and from the increasing experience of the new operating forces that we may look forward during the year 1920 to a return to substantially normal service conditions throughout the Bell System. (p. 21.)

Whether the present rate of earnings is sufficient for the present times and conditions is debatable. In the Bell Telephone System taken as a whole, more than in any other utility, profits are conserved within the System for the benefit of the public and the stockholders. There are inter-Company profits on use of patents, on expert engineering advice, etc., and on manufacturers, but either through the 4½ per cent payment or the dividends of the manufacturing company, these profits come to the treasury of the American Telephone and Telegraph Company the financing company of the System. Except for the dividends on the small amount of

stock of the associated companies in the hands of the public, all profits of the Bell Telephone System ultimately come to the treasury of the American Telephone and Telegraph Company, and all surplus over and above dividends is turned back into the System through investment in plant, particularly the long lines plant furnishing the inter-communication essential to universal service. Whether the total of the dividends paid is too much or too little is to be determined only by the market value of the shares and other securities of the American Telephone and Telegraph Company. The earnings must be enough to establish such market values as will make the shares or securities readily salable. (pp. 21-22.)

While for a number of years it has been practicable to talk by long-distance telephone between all of the principal centers of the United States, it has been desirable to improve the grade of speech transmission so that many small points tributary to those centers might be more satisfactorily included in the system of universal service. (p. 23.)

A method of accomplishing this improvement has now been perfected, and is being applied to some of our most important long-distance lines. When it is generally installed, the long-distance transmission of speech throughout all parts of the United States will be very substantially improved, as may be illustrated by the case of the New York-San Francisco line. When this line is equipped according to the new method, it will be possible to carry on a conversation between New York and San Francisco as clearly and distinctly and with as much ease as it may be done at present between New York and Boston. Without the new method, this great improvement in the service would be impossible because of the prohibitive cost of the heavy construction which would otherwise be necessary. (p. 23.)

Great progress has also been made in subscribers' station and central office apparatus. Improvements, making both for economy and efficiency, have been perfected and standardized for use. Among these the most important is the machine switching system which has been the subject of constant study and experimentation by this Department over a period of more than ten years. (p. 26.)

The functions of the Legal Department are dual, including the rendition to the American Company of such legal services as it may require in connection with the transaction of its affairs, and the rendition to the associated companies of the

legal services to which they are entitled as a part of the services due to them under the license contracts. (pp. 26-27.)

The Legal Department has continued without interruption its publications, including the Commission Leaflets and the Daily Bulletin of Current Decisions, which are distributed throughout the Bell System. (p. 27.)

The work involved in re-writing the license agreements and securing their execution by the various associated companies, to which reference was made in last year's report, has been substantially completed. (p. 27.)

Pursuant to a ruling of the Treasury Department and under the supervision of the tax division, there has been worked out a single consolidated report under the federal income tax law, including in this one report the transactions of this Company, and of all of the associated companies, with their subsidiaries, in all about two hundred and forty corporations. This is the largest consolidated report that has ever been filed and was an undertaking of much magnitude, intricacy and importance. (p. 28.)

The inventions covered by these patent rights embrace substantially all of the various phases of the telephone art and related arts in communication, both by wire and wireless. The strong patent situation of the Bell System enables this Company and its associated companies to utilize whatever is best and most practicable of what has been invented, and affords to the Bell System a free field for the future development of its system of communication in any direction which may be found desirable or which may give promise of improvement. (p. 28.)

The patent holdings of the Bell System have increased fully 12½ per cent during the last year. It now owns or controls or is licensed under more than five thousand United States letters patent and applications therefor.

The inventions covered by these patent rights embrace substantially all of the various phases of the telephone art and related arts in communication, both by wire and wireless. (p. 28.)

The entrance of this country into the war, the decimation of the ranks of the force by the contribution of many of our best people to military service, the abrupt increase in the cost of living, the impossibility of quickly increasing the companies' revenues through the prescribed channels of necessarily

slow-moving governmental authority, all contributed to make it extremely difficult for the companies to carry out, during the past few years, the established policies of the pre-war period. (pp. 29-30.)

During this period the officers of the companies have been impressed, however, with the desirability of the adoption of some practical plan which would assure a closer and more informal contact between the managing officials and the other employees than is readily afforded by the regular channels of administrative organization. In these abnormal times, when new problems are continually being presented not only to every department of the company but to every individual employee, as well as to every managing official, it has seemed more than ever essential to formulate some plan which would give to the management of the companies a more intimate knowledge and appreciation of the personal problems of the individual employee, his relation to the company's organization and his contribution to its success, and which would give to the employees generally a clearer and more general understanding of the policies and principles governing the administration of the business. It has been deemed wise to go further than this and give to those employees who desired it, an opportunity to discuss collectively as well as individually, their relation to the business. (p. 30.)

Accordingly, shortly before the properties were turned back by the Government a suggestion was made to the associated companies that they invite their employees to form committees or associations through the medium of which the managing officials and employees might deal directly in connection with matters affecting their common interests and the performance of the public service. This suggestion has been widely accepted and committees or associations of employees have been quite generally formed in companies where they did not already exist. * * * (pp. 30-31.)

In the Act of Congress giving the President authority to take over and operate the telephone and telegraph properties of the wire companies, the period of control was to be terminated by the ratification of peace. The armistice, therefore, foreshadowed the return of the properties to their owners. (p. 33.)

The additional and supplementary accounting which was a necessary corollary of federal possession and control of the telephone properties comprising the Bell System was met

by the Department of Accounts and Finance without resorting to separate federal and corporate books of account and separate federal and corporate accounting organizations, thereby avoiding the duplication and measurable disorganization which would otherwise have ensued. This structure and the plan of its detailed application during the year of governmental possession of the properties were evolved by the Department of Accounts and Finance for the associated companies collectively, in co-operation with the accounting division organized by the Postmaster General; likewise all of the many matters of subsequent accounting treatment, reporting and interpretation, were handled for the associated companies and recommendations or rulings laid down; those cases requiring such action being taken up with the proper Government officials. The added burden of the Federal Control period, it should be stated, fell to a very large extent on the Accounting Department of this company and its associated companies, and the splendid functioning of these organizations under the conditions imposed by Federal Control attests to the high caliber of both Bell System accounting personnel and organization. (p. 34.)

By Act of Congress approved July 11, 1919, it was ordered that the properties should be turned back to private control on July 31, 1919, and that rates established by the Postmaster General, unless previously changed by proper regulating bodies, should endure until December 1, 1919. The return made no change in operations. The compensation stopped and the earnings became the stockholders' earnings instead of the Government's. (p. 34.)

Immediately after the return, negotiations were opened for a settlement of accounts. It was realized that unless a settlement could be made for a fixed amount, the operations of the company would be hampered by a process of accounting, auditing and checking likely to continue for years. It was found that certain items were debatable. After mature consideration, it was decided that a prompt settlement would justify the concession of all debatable points. A proposition was made and accepted in the terms of the following letters:

"HONORABLE ALBERT S. BURLESON, October 4, 1919.
Postmaster General,
Washington, D. C. (pp. 34-35)

Dear Sir: Under the contract for just compensation to the American Telephone and Telegraph Company and the constituent companies constituting with it the Bell System, evidenced by the proposal of the American Telephone and Telegraph Company dated October 4, 1918, and the acceptance thereof, evidenced by Order 2085 signed by the Postmaster General, by direction of the President, October 5, 1918, the amount due and unpaid, as of August 1, 1919, to this company in behalf of itself and the other constituent companies which indicated their purpose to join in said proposal, as provided therein, as shown by the books kept during the period of federal control and as set forth in the enclosed statement, is the sum of $13,363,938.85. (p. 35.)

In arriving at this amount the assessment of interest on delayed payments from one party to the other for taxes, receivables and payables (other than compensation due and unpaid) has been treated as waived and it has been assumed—

(a) That the accounts receivable and accounts payable and other current assets and liabilities on the books of the said companies as of midnight July 31, 1918, and such accounts on the books of the Postmaster General as of midnight July 31, 1919, shall be passed from one to the other at their face value.

(b) That the Balance Sheet of Accounts representing the cost of material and supplies on hand shall be settled on the basis of the inventory figures of August 1, 1918 (based on average cost prices of materials and supplies then on hand), and the actual cost of material and supplies on hand as shown in the accounts of the Postmaster General as of July 31, 1919.

(c) That the so-called overlap items of revenue, expense and income encountered during the period of federal control, but applying to the period prior thereto, will be offset by similar items of federal revenue, expense and income encountered by the companies subsequent to federal control. (p. 35.)

These assumptions have been adopted because it is manifest that any differences which might be disclosed by a final accounting of these matters would be insignificant and much less than the expense to each party that such an accounting would entail. The delay that would be involved is also a serious consideration. Several years would necessarily elapse before such an accounting could be completed, and during this period both your organization and our organization would be disturbed, and neither could devote its whole energy to the service which it furnishes. (pp. 35-36.)

Our negotiations have developed two items in questions involving the construction of the contract, which are:

(a) Claimed duplication in the payment on account of our investment in instruments $1,556,175

(b) Claimed deduction on account of expenses of the constituent companies assignable to strictly corporate matters not properly chargeable to federal operation $991,203

In making this contract and in carrying it out, the controlling purpose of the Bell System has been to render to the Government during the emergency created by the war, the most efficient service within its power. (p. 36.)

For this reason, and because it is desirable that the questions arising under this contract be adjusted without the delay and expense, and other consequences which might result from controversy and possible litigation, the American Telephone and Telegraph Company proposes, in behalf of itself and each of the constituent companies under the said contract, to settle and compromise all claims of the American Telephone and Telegraph Company and its constituent companies under said contract, and to accept in full, complete and absolute satisfaction and discharge of said claims $9,290,170.31, with interest thereon at 5% from August 1, 1919, until paid. This proposal is upon the express condition that said amount be actually paid within not less than one year from October 1, 1919. (p. 36.)

This proposal involves our concession of each of said questioned items, with an additional item of $276,390.54

on account of interest during the period of federal control on deferred compensation payments, and of a further lump sum of $1,250,000, which we propose to yield as a fair estimate of the expense which would be avoided by this method of settlement.

Yours very truly,

THEO. N. VAIL, *Chairman.*" (p. 36.)

"Washington, October 31, 1919.

The proposition contained in the foregoing letter is hereby accepted, this acceptance, however, to be upon the express condition that if the Division of Accounting of the Wire Control Board shall, after such an examination of the accounts as it deems necessary for that purpose, within sixty days hereafter, certify that the settlement proposed by the above proposition is less favorable to the Government than a settlement in accordance with the strict terms of the contract, then this acceptance may be withdrawn. By direction of the President,

A. S. BURLESON, *Postmaster General.*" (p. 36.)

Since the date of the provisional acceptance by the Government, the Postmaster General's accountants have been actively at work and no objection having been made, the acceptance became final December 30th. (p. 36.)

To understand or correctly determine the actual costs and charges of the telephone service, and the utimate distribution of the revenue, a consolidation must be made of the accounts of the Bell Telephone System which includes the American Telephone and Telegraph Company and its associated holding and operating companies in the United States, but does not include connecting independent or sublicense companies, or the Western Electric Company, Inc., except as interest and dividends from these companies are included in non-operating revenues. (p. 39.)

A consolidated income statement follows with all intercompany duplications eliminated so that the figures represent the business of the System as a whole in its relations to the public (p. 39):

BELL TELEPHONE SYSTEM IN THE UNITED STATES
INCOME STATEMENT, 1918 AND 1919

(Duplications Excluded)

	1918	1919
Total Income, including Compensation	$75,058,885	$79,650,186
Deduct Interest	23,111,118	27,692,621
Balance, Net Profits	$51,947,767	$51,957,565
Deduct Dividends	39,734,719	39,839,927
Undivided Profits	$12,213,048	$12,117,638

(p. 39)

The capital stock, bonds and notes payable of the Bell Telephone System outstanding in the hands of the public at the close of the year 1919 were $1,050,000,000, while the net assets devoted to earning a return on these outstanding securities amounted to over $1,448,500,000. This is due to the fact that surplus and reserves of over $388,500,000 have been invested in productive property. On this amount equal to approximately one-third of the investment in plant, it is not necessary to pay capital charges. As a result a relatively low return on the total net assets is sufficient to earn fixed charges and dividends. (p. 42.)

Not only does the telephone business grow steadily even in times of business depression, as is shown by the diagram on the back cover of this report, but that it does not suffer any substantial retardation in its normal growth during such periods, appears from the chart on the following page. (p. 43.)

The telephone business varies very slightly from its normal growth as compared with the fluctuations of general business. This is an element of security and enables the business to be carried on with a lower margin of surplus earnings than would be safe in general industrial undertakings. (p. 43.)

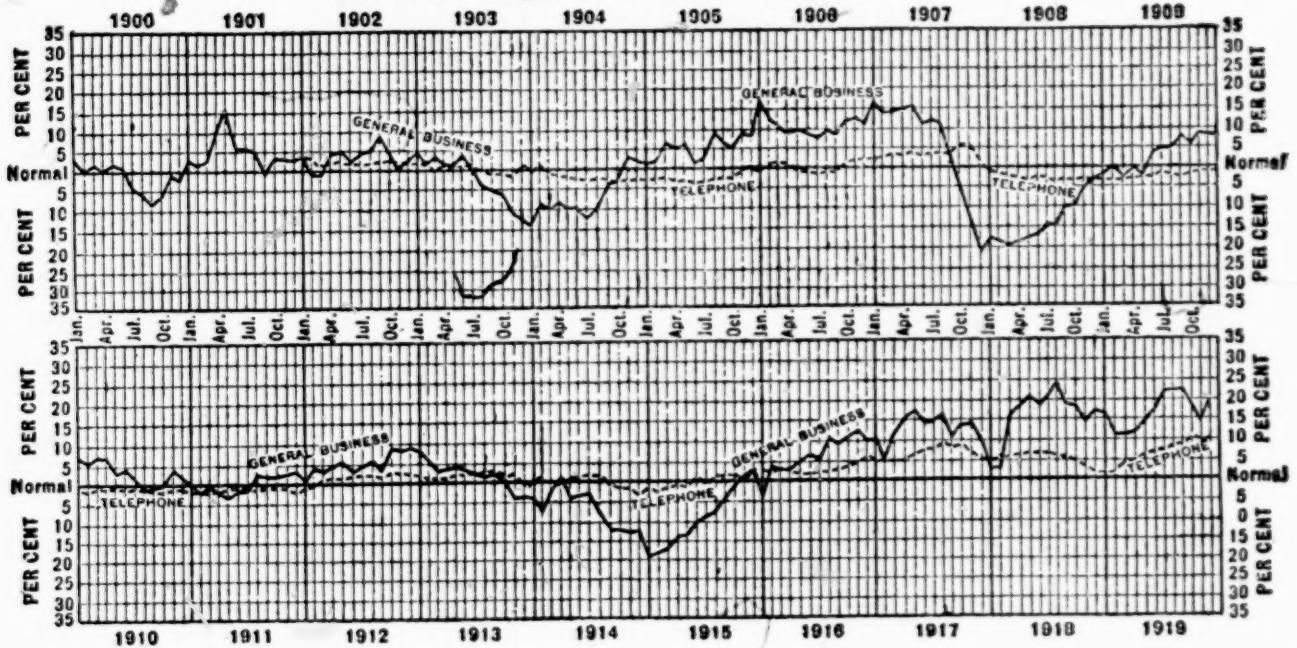
The sales of the Western Electric Company, Incorporated, for the year 1919 aggregated $135,000,000, of which $70,000,000 were to the associated Bell Companies and $65,000,000 were to other customers. The decrease of $10,000,000 as compared with 1918, is entirely attributable to the cessation of Government requirements. The earnings were sufficient to provide the usual reserves and pay the regular dividends with a fair margin. Starting the year with unfilled orders aggregating

only $26,200,000 and a poor prospect of new business, the company gained steadily from month to month, ending the year with the largest month's sales in its history and unfilled orders aggregating $47,000,000. (p. 43.)

The estimates for 1920 indicate a continuing increase in business, to take cars of which will tax the company's facilities to the utmost. Important additions to the manufacturing plant at Hawthorne are under way, part of which will be occupied during the year, and the balance will be pushed to completion as rapidly as possible. (p. 43.)

A COMPARISON OF THE TELEPHONE BUSINESS AND GENERAL BUSINESS WITH ESTIMATED NORMAL

The curve "General Business" is an estimate of general business activity in terms of volume of business, i. e., with all price inflation eliminated.
The "Telephone" curve is a measure only of the volume of telephone business, and not significant of financial results of operation.



City's Exhibit 90

The following table shows the earnings per share available for dividends on the stock for each year since 1900:

1901	$10.99	1910	$10.34
1902	8.92	1911	10.01
1903	9.19	1912	9.86
1904	8.63	1913	9.59
1905	9.91	1914	9.38
1906	9.86	1915	9.52
1907	11.89	1916	9.77
1908	11.64	1917	9.48
1909	10.85	1918	9.97
		1919	10.05

The company and its predecessor have paid dividends to the public at the rate of at least $7.50 per share each year for the past thirty-eight years; during the past thirteen years the rate has been uniformly $8.00 per share. (p. 46.)

Accounts Receivable in Suspense amounting to $10,227,973.34 represents interest due this company by the Central Union Telephone Company, an associated company, the payment of which was withheld during the receivership which terminated during the year. This interest has not been fully earned by the Central Union Telephone Company. It has been possible since the termination of the receivership to transfer out of suspense part of the amount carried therein at the close of 1918, and it is expected that the amount remaining will be further reduced during the year 1920. (p. 48.)

To the 120,460 stockholders of record shown above there should be added some 9,000 employees of the Bell System in all parts of the country who are paying for stock out of their wages at the rate of $2 per share per month. (19,506 employees have already paid in full for their stock, and are now stockholders of record.) Counting these and also those persons whose stock is held for them in investment trusts and the like, there were probably at least 140,000 actual owners of stock in this company at December 31, 1919. (pp. 50-51.)

A second stock purchase plan effective in 1920, by which employees of one year's service or more in the Bell System are aided to become stockholders of this company to the extent of a limited number of shares each, for which they are to pay out of their wages at the rate of a few dollars a month, was announced the latter part of the year. Over 50,000 employees in all parts of the country have applied for shares under this plan. (p. 51.)

Special Demand Notes. This item has appeared in the balance sheet in every annual report issued since and including

that of December 31, 1909. Its amount has varied from $6,575,000 to $34,311,230. Last year it was $21,583,412.10 and this year it is $12,000,000. (p. 52.)

To make this item thoroughly understood, involves going into considerable detail but as it is likely to appear for greater or less amounts in subsequent reports, it is believed to be worth while to do so. (p. 52.)

These notes represent advances made to the Atlantic and Pacific Telephone and Telegraph Company (a company wholly owned by this company, incorporated under the laws of New Jersey), which have been expended by it pursuant to the specific directions of this company in transactions for this company. Any profits or losses arising out of these transactions belong to this company. The Atlantic and Pacific Telephone and Telegraph Company is, therefore, purely an agency of this company, this company being the real principal in all of its transactions. (pp. 52-53.)

During the past ten or fifteen years, the Public Service Commissions, City Councils and other bodies, having either an interest in or the power of regulation over such matters, have definitely concluded that duplicated telephone service is wasteful to the public. We have realized as well that it was wasteful to those giving the service. (p. 53.)

In the report for the year ending December 31, 1909, Mr. Vail announced a policy and program with reference to consolidations in the following words:

INDEPENDENT AND OPPOSITION COMPANIES.

"A large number of opposition and independent companies have been absorbed into the Bell System during the year. Our position has been consistent. Wherever any opposition company can be legally brought into and made a part of the Bell System, it is done if it can be done to the advantage of the public, by and with the assent of all parties interested, including not only the public served, but the public authorities." (p. 53.)

To the direct advantage of the public, in scope and efficiency of service and reasonableness of rates, and in the interest of this company, often under the pressure of public opinion and always with the approval, or in conformity with the rulings, of commissions, courts and the Department of

Justice, such consolidations have been made. In anticipation or in consequence of them, stocks, securities and properties have been purchased. The profits anticipated from such transactions have not always been direct, but have come through the greater efficiency of the exchange service and in time through the decreased expenses or increased earnings of the associated companies. In these transactions, because of overlapping territory of the Bell companies and the opposition companies and of various diverse interests, it was difficult to allocate the profits, or losses where there have been losses, and to adjust them as between the different associated companies of the System. It was expected that ultimately securities acquired would be exchanged for obligations of the associated companies. This buying, holding and final disposition of these stocks and securities and of other securities which constituted temporary investments has been conducted through the Atlantic and Pacific Telephone and Telegraph Company. (pp. 53-54.)

It has been announced at various times in the annual reports that this company was in process of acquiring larger interests in the associated companies. It has seemed desirable, in order that the holders of minority interests should retain an interest in the telephone business and in order that interest in our company should be widely distributed, that payment for minority stock in associated companies should be made in the stock of this company. (p. 54.)

For the same reasons, it has sometimes seemed desirable that payment for other operating properties should be made in stock of this company. Also, for the purpose of a wider distribution and in order to give the employees an opportunity to acquire a financial interest in our business, stock has been bought for distribution to them. (p. 54.)

This company has generally conducted its transactions of this character through the Atlantic and Pacific Telephone and Telegraph company. (p. 54.)

As between the Atlantic and Pacific Telephone and Telegraph Company and an associated company in which this company holds substantially the same financial interest, it is not worth while to attempt to assess accurately profits and losses. The prospective operating profits have gone to the operating companies. The immediate book losses, where there have been any, have through the Atlantic and Pacific

Telephone and Telegraph Company remained with this company. (p. 54.)

Taken as a whole, the advantage to the public and the value to the stockholders of this elimination of duplication and this establishment of the Bell System of service have been beyond estimate. It has seemed to be in line with conservative management and accounting not to attempt to set up estimated and prospective profits against the realized losses which represent an expense of these consolidations, but, in order that your balance sheet and your income statement might present conservative pictures of the company's net worth and income, profits and losses of the Atlantic and Pacific Telephone and Telegraph Company have been transferred to this company when realized and reserves have been transferred from this company to the Atlantic and Pacific Telephone and Telegraph Company, so that the amount set against Special Demand Notes has represented a conservative valuation of the net worth of that account. (pp. 54-55.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY BALANCE SHEET, DECEMBER 31, 1918 AND 1919.

ASSETS.

	Dec. 31, 1918	Dec. 31, 1919
Stocks of Associated Companies	$485,657,616.78	$490,792,063.02
Bonds and Notes of and Advances to Associated Companies	104,256,700.00	162,137,133.88
Stocks of other Bell System Companies	52,104,228.83	53,562,188.73
Special Demand Notes	21,583,412.10	12,000,000.00
Telephones	18,988,928.58	21,287,848.93
Real Estate	509,267.36	3,138,119.01
Office Furniture and Fixtures	288,162.33	336,521.50
Long Lines Plant	75,450,890.26	82,178,606.58
Trustees — Employees' Stock Purchase Plans	1,226,000.25	8,812,799.03
Current Accounts Receivable:		
Due from United States Government account Compensation	.....	9,483,715.52
Other Current Accounts Receivable	7,469,934.16	8,737,763.55
Accounts Receivable in Suspense	15,300,559.94	10,227,973.34
Deferred Assets	*1,002,156.16	.....
Temporary Cash Investments	5,642,974.94	36,574,185.40
Cash and Deposits	31,675,902.78	27,512,170.11
	$821,156,734.47	$926,781,088.60

*Cash turned over to Postmaster General as Working Capital. (p. 64.)

1920

To give an adequate and economical service our earnings should be large enough and stable enough to attract money freely to our securities and to our stock. We believe that it is for the real benefit of the public we serve that earnings should be nearer a fair return on the investment than they have been.

The interest of the public requires that our stock always be a very high grade investment security, and that thereupon it should be always enough to make it attractive at a premium with margin enough to insure stability. (pp. 4-5.)

A Nation-wide Utility.

The telephone is, more than any other, a nation-wide utility. Telephone service to be adequate cannot be limited by any political boundaries narrower than the boundaries of the nation. It must reach across the continent and connect not only the cities and larger communities, but the cross-roads, settlements and the scattered farms. No individual part of the development can be considered only with reference to itself, but each part must be considered in its relation to the whole. Does it add a proportionate value to the service of the whole? It is easy to understand that the development of the service anywhere adds to the value of the service everywhere. No subscriber to telephone service knows in advance the stations or locations he may at some time want to reach. Every increase in potentiality of service increases value. (p. 5.)

Growth of a Nation-wide Organization.

When forty-odd years ago the telephone was introduced to the American public, and when some of the great financiers and business men of that period looked upon it as an interesting curiosity with no great commercial value, the small group of Boston merchants who undertook its development, with wonderful vision and almost prophetic foresight laid the foundation and planned the business structure for the great nation-wide utility which the Company has become. (p. 5.)

New York, March 5, 1921.

TO THE STOCKHOLDERS:

It is the purpose of these reports to make clear to a large and steadily increasing body of stockholders not only the present financial status of their properties, but also such facts as to the broad and farreaching extent of the Company's business, the insistent and steadily increasing demand for additional telephones and facilities, as will enable them to form accurate judgments as to the soundness of the structure which has been successfully created, and the assurance of continuing returns on their investments. (p. 5.)

Starting with only a group of patents and an experimental model, from that time up to the establishment of the complete System, which has been of such value as to revolutionize commercial and domestic life, the evolution has been broadly along the lines which they foresaw. (pp. 5-6.)

In the beginning they made short-term licenses to individuals or corporations for different territories, the parent company furnishing the telephones on rental. During the formative period it was necessary that development be through the enlistment of local capital. This plan fostered such development without surrendering the central control necessary to the ultimate creation of a nation-wide System. (p. 6.)

It was foreseen that essential patents upon subsidiary apparatus would be developed, and in order that all licensees might have equally the benefits of such patents and upon a fair basis, the parent company undertook to acquire such rights as would prevent any interference with their use of the best apparatus and methods of operation. (p. 6.)

Within ten years of the first public exhibition of the telephone, the working organization of the business had taken substantially the form which it has today. (p. 6.)

The original scattered licensees had combined their territories and their organizations and permanent licenses and taken the place of the earlier temporary arrangements, and there was thus created a group of telephone companies operating under patents owned and controlled by the parent company in territories clearly defined and taken together covering the whole country. In all of these companies the parent company becomes a stockholder. Their payments to the parent company were based upon the number of telephones in use, and included a royalty for the use of patents, a rental

for the use of the telephones and a payment for the services of the parent company. (p. 6.)

The obligation to develop communication between the licensee companies devolved upon the parent company, and within the period named a beginning had been made by the construction of a line between New York and Philadelphia. (p. 6.)

To provide a source of supply of apparatus of a uniform standard as to quality and type, a contract was made with the then largest manufacturer of electrical apparatus under which the manufacturer was obligated to furnish to all of the licensee operating companies its products at uniform and reasonable prices. In the manufacturing company, the parent company became a stockholder and in time the controlling stockholder. (p. 6.)

Near the beginning of this first ten years the parent company established a central headquarters staff to advise its licensees as to apparatus and operating methods and to study, develop and standardize such apparatus and operating methods as experience or foresight might indicate to be necessary to meet the telephone requirements of the public. (p. 7.)

Thus, by 1890, the organization described was in existence and functioning, with a total number of telephones in the United States, one-fifth of the number in New York City today. It embodied the essential elements of the organization of the Bell System of the present, that is: *central control*—a central advisory staff—a central laboratory of development and research—a central source of supply of standardized material—local operating companies and a national network of lines connecting them. Neither results nor efficiency nor economy in nationwide service could have been achieved by unrelated local agencies. (p. 7.)

The American Telephone and Telegraph Company is the parent company. The associated companies are the successors of the original licensees. Of their voting stock the parent company now owns directly and *indirectly 89.5 per cent.* The Western Electric Company, Inc., is the manufacturing and supply company, of which the parent company *owns 98 per cent.* The parent company owns and operates the interconnecting long-distance lines. (p. 7.)

This organization protects the service from excessive profits that might otherwise be exacted by manufacturers, promotors of inventions, or engineering and construction con-

cerns. It retains for the ultimate benefit of the System and the public, what the System itself has produced. It provides not only a point of nation-wide outlook but also a coordinating force and an impetus for and a means of progress. (p. 7.)

With all of the complications of varying state legislation and supervision it has made possible the operation of the System through scores of companies as a homogeneous whole. It has kept this country constantly far in the lead in the development of the telephonic art. It has saved hundreds of millions in first cost of plant and tens of millions in annual cost of operating, of which the public enjoys the benefit." (p. 7.)

Through this contract there is accomplished standardization of methods in all departments of work along the lines of economy and efficiency; it has made transcontinental service possible and provides the wire system for national service; it undertakes all system services—the things which one agency can do for the service of all, as, for instance, the negotiations, accounting and settlement with the government for the period of Federal control. (p. 9.)

As to many of the services afforded by this contract it is impossible to determine exactly either the cost to the American Telephone and Telegraph Company or the value to the associated company. The extent of the services and their value have increased and are increasing year by year, as the extent and variety of service to the public grow. Of some values it is easy to get a fairly close approximation. The use of patents owned by the American Telephone and Telegraph Company, of which the use to the associated companies is exclusive, saved in cost of plant constructed in 1920 over $19,000,000, and in use of plant previously constructed, over $20,000,000 in annual charges in 1920. This value cannot be associated with the expenses of 1920. A large part of their cost was in earlier years, and conversely the patent expenses of 1920 are largely for the benefit of later years. No one can determine what value these patents of 1920 will have in succeeding years. (p. 9.)

It is not an exaggeration to say that the services to the associated companies make it possible for them to furnish telephone service to the public at rates at least 25 per cent less than would otherwise be possible. (p. 9.)

The total receipts for these services in 1920 were $17,675,695.51. No separate telephone system in a city or state could

perform these services for itself. Because the Bell System is a single, nation-wide system, and because the services are general services in the direction of efficiency and economy resulting in the possibility of lower rates, the apportionment of charges by a percentage upon revenue (4½ per cent) seems to be a logical one. (p. 9.)

The cost which the rendition of these services imposes upon the American Telephone and Telegraph Company cannot be ascertained with entire accuracy, because it depends upon the elimination of that portion of general expense which would normally be incurred by a *company owning securities of other corporations*, but not obligated to perform such services, as well as upon the consideration of other items, all of which must of necessity be estimated. Without including any provision for contingencies which may occur in the future, and which should ultimately be treated as part of the cost of 1920, *careful estimates of* the cost separately and independently *made vary between* $14,770,918 *and* $16,415,890. The margin between costs and receipts, whatever it may be after allowance for contingencies, contributes to the efficiency of the System by providing a broader latitude in the initiation of projects and by strengthening the financial credit of the System. (pp. 9-10.)

Objection is sometimes made to increases in rates urged by an associated company on the ground that the American Telephone and Telegraph Company owning all of its stock is earning dividends with a margin. (p. 10.)

The irrelevance of this objection should be fully understood by our stockholders. (p. 10.)

A rate-regulating body can justly fix rates only for the service of a utility *under its jurisdiction*. Whether the owners of that utility have or have not revenue from without its jurisdiction is obviously irrelevant. (p. 10.)

The reason why this Company can pay dividends when some of its properties are not paying is of interest. (p. 10.)

The Company pays its dividend on a par value of $100, but there is much more than one hundred dollars earning that dividend. *Much of the* Company's stock has been issued at more than par. The amount paid into the Company's treasury for stock exceeds the capitalization by $36,684,237. The Company has never paid out all of its earnings in dividends, but has consistently pursued the policy of employing some part of its earnings in extending and improving its property.

So it comes about that through this cash payment of $36,684,237 and the earnings upon that sum and the other earnings left with the Company, surplus and reserves of $154,565,113, or $35 per share, have accumulated which are invested for the stockholders. (pp. 10-11.)

Most of this capital and surplus is invested in stocks of associated companies. Many of them have had periods in which they paid no dividends, leaving all of their earnings in the business; and other periods in which they left a part there. This Company's interest in *the amount so accumulated* is equivalent to $67 per share of its capital stock, which added to its own surplus and reserves ($35 per share) makes over $200 in assets to earn the dividend upon each $100 par value of its stock. (p. 11.)

To give an adequate and economical service, our earnings should be large enough and stable enough to attract money freely to our securities and to our stock. We believe that it is for the real benefit of the public we serve that earnings should be nearer to a fair return on the investment than they have been. (pp. 11-12.)

The interest of the public requires that our stock always be a very high-grade investment security, and that the return upon it should be always enough to make it attractive at a premium with margin enough to insure stability. (p. 12.)

At the beginning of the past year it was realized that adjustments must be made to new standards of earnings. The wide margin between capitalization and investment, and the relatively low return on the total net assets necessary to pay the fixed charges and dividends, have permitted us in the past to do new financing on favorable terms even at times when such earnings were not all that the investment justified and when the Company's investments in some parts of the System were not earning their fair part of the revenue. Thus for the benefit of an adequate, nation-wide service the American Telephone and Telegraph Company has been in effect carrying in some sections of the country a part of the fair cost of telephone service. The larger earnings required by present financial conditions do not permit this to continue. (p. 12.)

Our program for the past year has been to bring service uniformly up to standard, to make such increases in pay to telephone workers as would result in attracting and holding a skilled, loyal and hopeful army of employees, and to increase the revenue to an amount nearer what the investment of the

stockholders justifies by bringing all sections to a basis of reasonably fair earnings so that as a final result this Company, which largely represents the investing public's ownership in the telephone business, would make the larger earnings which now are necessary to attract new capital at reasonable cost. (p. 12.)

Exchange of Patent Licenses.

Pursuant to its policy of developing to the fullest extent all kinds of apparatus and operating methods which might be useful to the associated companies of the Bell System in rendering service to the public, and in order that the associated companies may at all times have available and be free to use the best apparatus and the most advanced methods of operation, the American Telephone and Telegraph Company secures the necessary patents or patent rights. During the course of its scientific researches and the development of the best methods of telephone transmission, both by wire and by radio, hundreds of valuable patents and patent rights have been secured, many of them covering fundamental features of wire and wireless telephony and telegraphy. (pp. 15-16.)

During the course of its scientific researches and the development of the best methods of telephone transmission, both by wire and by radio, hundreds of valuable patents and patent rights have been secured, many of them covering fundamental features of wire and wireless telephony and telegraphy. (pp. 15-16.)

In connection with its development of radio machinery and apparatus, the General Electric Company also secured a number of important patent rights useful not only in radio work but also applicable to wires. (p. 16.)

In order to meet this situation, a contract was made between this Company and the General Electric Company, providing for an exchange of licenses whereby the General Electric Company and its associated company, the Radio Corporation of America, would have the benefit of our patent rights and development work in their field of radio telegraphy, *and the Bell System should have the benefit of their patent rights and development work in the field of wire and wireless telephony and in wire telegraphy.* (p. 16.)

As a measure tending still further to foster improvements in all forms of telephone and telegraph communication, and

to furnish to our scientific experts and operating staff still greater facilities for obtaining practical experience in the radio art, this Company has taken a stock interest in the Radio Corporation above mentioned. (pp. 16-17.)

During the past year the morale of the personnel of the Bell System has steadily improved until it now equals and in many cases surpasses the highest of any pre-war standards. Never have the relations between the management and the employees been more cordial or based upon better mutual understanding. (p. 20.)

Not the least of the many factors which have contributed to bringing this about are the meetings which have been taking place during the year between the supervisory officials and employees or committees of their associations, at which many phases of the business have come up for discussion, as, for instance, the relation of different departments and the co-ordination of their functions, the relations between employees and supervisiory officials, questions as to wages and working conditions, the relation of wages to production, explanations of routines, increase in efficency, and the introduction of economies. (p. 20.)

One result from these conferences has been constructive suggestions by employees many of which have already proved of value. (p. 20.)

In some of the associated companies, the employees have themselves formed committees for the purpose of discussing ways in which they can in their respective spheres improve their relations with the public and meet the public's requirements in the most acceptable manner. (p. 20.)

The year just closed has been one of remarkable activity in the Department of Development and Research. In this department, *including the laboratories at the Western Electric Company*, 2,800 employees are engaged exclusively in research and the development and improvement of telephone and telegraph apparatus and materials and methods. Of these, 1,100 are engineers, chemists, physicists, and other scientists, among whom are graduates of more than 100 American colleges and universities. The remainder are laboratory assistants, draftsmen, stenographers, clerks, model makers, and administrative personnel. (p. 22.)

During the year, hundreds of new patents relating to the telephone and telegraph, issued in various countries, have been examined and studied; the latest discoveries in science

have been followed with care by our scientific staff; and over 1,000 United States patents relating to telephony and *telegraphy* have been applied for by, or issued to, or acquired for the use of *this Company*. (p. 22.)

It will be recalled that in 1915 our engineers, using the wireless telephone system which they devised, transmitted speech across the Atlantic Ocean for the first time in history. In view of this fact, and because no means have yet been found for talking across the ocean through submarine cables, it is desirable that development work in this branch of the radio art be continued. (p. 24.)

During the past year our engineers have successfully used this quick ciphering method in radio telegraphy for short distances, so that the messages were received and instantly deciphered at the station for which they were intended, yet they could not be read by any station not in possession of the key to the cipher and the deciphering apparatus. Our work upon this system has developed so satisfactorily that it is hoped that with further improvements in the radio art this secret method of telegraphy can be made available for greater distances and eventually for general employment in radio telegraphy. (pp. 25-26.)

In the last report, mention was made of new methods of improving the transmission over *the longest telephone wires*. These methods have now been commercially applied to the transcontinental circuits and the predicted results have been completely realized, so that conversation between New York and San Francisco can now be carried on as satisfactorily as between such points as Boston and New York. (p. 26.)

PRINCIPAL CORPORATE CHANGES IN THE BELL SYSTEM DURING 1920.

During the year 1920 three important corporate changes affecting a number of the associated companies, were made, either better to meet the requirements of state laws or to facilitate better supervision and more economical operation of the properties. The first of these changes related to the Bell System property in Missouri, Kansas, Arkansas, Oklahoma and Texas; which, for some years past, had been owned and operated by three separate companies with common executive management and headquarters at St. Louis, Mo. In order to bring about closer coordination, to eliminate dupli-

cation of organization, and to facilitate other economies, it was deemed desirable that a single company should own and operate these properties. Accordingly, as of March 31, 1920, The Southwestern Telegraph and Telephone Company and the Southwestern Bell Telephone Company, the Bell System operating companies in Texas and Oklahoma, respectively, sold their properties to the Southwestern Bell Telephone Company, of Missouri, Kansas and Arkansas. These transactions combined the entire property in the five states under a single ownership and management with the American Company owning the entire outstanding capital stock of the Missouri company. (pp. 28-29.)

The second important change related to the Central Union Telephone Company, which prior to March 31, 1920, was the Bell System operating unit in the States of Illinois, Indiana and Ohio. Other associated companies, including the Chicago Telephone Company (name changed in December, 1920, to Illinois Bell Telephone Company), and The Cleveland Telephone Company (name changed in October, 1920, to The Ohio Bell Telephone Company), also operated in certain sections of these states. In the early part of 1920, to meet statutory requirements in respect of telephone companies operating in Indiana, and in an endeavor to secure improvement in operating results, it was deemed desirable to form, a new company—the Indiana Bell Telephone Company—to acquire the Central Union and other Bell System property in Indiana, the operations of the company to be confined to that state. This was done in March, 1920, the Central Union Company selling its property in Indiana to the newly incorporated Indiana Bell Telephone Company. In order to provide funds for the new company to purchase the property in Indiana, the American Telephone and Telegraph Company acquired certain of the notes and all of the issued capital stock of the company; the Central Union Company, concurrently with the proceeds from the sale of its property, liquidating indebtedness to the American Company of like amount. (p. 29.)

With the territory of the Indiana Bell Telephone Company thus interposed between the remaining properties of the Central Union Company in Illinois and Ohio, it followed that the most economical and efficient operation of the Central Union properties would be secured by their sale to, and operation as a part of the systems of, other associated companies operating in Illinois and Ohio. At the same time, this pro-

cedure was deemed to be more satisfactory to the regulatory commissions in these states, and to ourselves, by reducing the number of associated companies operating in these states. Arrangements were accordingly made whereby the Illinois property of the Central Union Company was sold to the Illinois Bell Telephone Company as of December 1, 1920. In payment for its property the Central Union Company accepted the notes of the Illinois Bell Telephone Company maturing in December, 1923. Likewise, as of December 31, 1920, the Ohio property of the Central Union Company was sold to The Ohio Bell Telephone Company. The American Telephone and Telegraph Company purchased the notes and the additional capital stock issued by The Ohio Bell Telephone Company to enable the latter to buy the Ohio property of the Central Union Company, and from the proceeds of the sale the Central Union Company liquidated indebtedness to the American Company of like amount. The Central Union Company by these transactions sold all of its telephone property, but continues to own assets which consist mainly of securities of other companies. (p. 31.)

The third change related to the Bell System property in the States of Iowa, Minnesota, North Dakota, South Dakota and Nebraska. In the past the properties in these states were owned and operated by three separate companies with common executive management and headquarters located at Omaha, Nebraska. In order to consolidate the operation of these properties into a single unit, to eliminate duplication in organization and to effect other economies, arrangements were made whereby, as of December 31, 1920, the Northwestern Bell Telephone Company (formerly the Iowa Telephone Company), an Iowa corporation, purchased the property of The Northwestern Telephone Exchange Company—operating in Minnesota, North Dakota and South Dakota—and the property of the Nebraska Telephone Company—operating in Nebraska and South Dakota. These transactions place the entire property in the five states under a single ownership and management, the American Company owning the entire outstanding stock of the Northwestern Bell Telephone Company. (pp. 31-32.)

Insofar as the balance sheet of the American Telephone and Telegraph Company is concerned, these corporate changes and inter-company territorial rearrangements result merely in a change in the form of assets laid without increasing the book investment. (p. 32.)

WESTERN ELECTRIC COMPANY, INC.

This original arrangement has developed by natural stages into an intimate co-operation in development and research work, an increasing standardization of telephone equipment and a routinized procedure throughout the entire Bell System in the manufacture and construction of its plant. This has been one of the factors contributing to practicable telephone communication between all parts of the system and has saved many millions of dollars in cost of equipment. (p. 32.)

The prices of telephone apparatus have until the past six years been steadily cut down by reason of quantity production and manufacturing economies. With the increasing costs of labor and material since 1914, telephone apparatus prices have necessarily been increased, but the increase has not been more than sufficient to meet the increased cost of manufacture. As compared with materials and supplies purchased of other manufacturers, the prices of which increased on an average 110 per cent from 1914 to 1920, the prices of telephone apparatus sold by Western Electric Company to the Bell companies increased an average of less than 67 per cent during the same period. (p. 32.)

WESTERN ELECTRIC COMPANY, INC.

Under the contractual relationship between the American Telephone and Telegraph Company and the Western Electric Company existing since 1882, the control of inventions and patents relating to telephones and telephonic appliances developed or acquired by either company rests in the American Telephone and Telegraph Company. (p. 32.)

The Western Electric Company is licensed to manufacture under such patents under conditions protecting the telephone companies as to price, quality and quantities. (p. 32.)

In addition to its work for the Bell Companies the Western Electric Company has built up a large and profitable electrical jobbing business throughout the United States and an important export and foreign business. (p. 33.)

Contrary perhaps to general opinion it *does not make a large profit on its business with the Bell Companies.* During the past five years it has averaged a net earning of approximately 5 per cent *on its capital devoted* to this part of its

business. In the earlier years the earning *rate was larger.* It is believed that the earning rate on this business should fairly be not less than 10 per cent and that as conditions of manufacture again approach normal this can be reached without increasing prices. (p. 33.)

Fortunately, during these less productive years on telephone apparatus, the general business with other customers has been profitable so that as a whole the company has earned its regular dividends *with some margin.* (p. 33.)

The sales billed by the company during the year 1920 aggregated $206,000,000, of which $114,000,000 were to the Bell Companies and $92,000,000, largely electrical jobbing business, *were to other customers.* This is an increase over the previous year of 62 per cent to the Bell Companies and 41 per cent to other customers. (p. 33.)

The requirements of the Bell Companies on the Western Electric factory considerably exceeded those of any previous year, and until the latter part of the year its operations were conducted under the severe handicaps of transportation difficulties, shortage of labor and lack of essential materials common to the other industries of the country. In spite of these difficulties the company greatly increased its working forces and its output. (p. 33.)

Important additions were made to the Hawthorne plant, chiefly for the purpose of providing facilities to produce machine-switching equipment in large quantities. (p. 33.)

The company provided on its own credit all the necessary additional capital required to carry its increased volume of business. (p. 33.)

Its unfilled orders on hand at the of the year aggregated $83,000,000 as compared with $47,000,000 on December 31, 1919. Its estimates for 1921 as compared with 1920 indicate a larger volume of business in its own manufactures and a smaller volume in its sales of the manufactures of others. (p. 33.)

A consolidated Bell System income statement with all intercompany duplications eliminated follows and represents the telephone business of the System as a whole in its relations to the public. (pp. 35-36.)

BALANCE SHEETS.

The following are the combined balance sheets of the Bell System in the United States for the years ending December 31, 1919 and 1920:

BELL SYSTEM BALANCE SHEETS, 1919 AND 1920
(Duplications Excluded.)

(p. 37.)

The earnings of the American Telephone and Telegraph Company for 1920 include, in addition to the earnings of the long-distance lines, dividends on the Company's investment in stocks of its associated companies, interest on bonds and notes of and advances to associated companies, interest and dividends from investments in other companies, earnings under the general service contracts with associated and other companies for the furnishing of instruments and services, and other miscellaneous revenues. (p. 39.)

During the year investments in stocks of associated companies increased $33,653,891.90. This increased stock investment represents for the most part merely a change in the form of assets resulting from the sale by the Central Union Telephone Company of its property and the corporate changes in connection with the Southwestern Bell Telephone Company described on page 29 of this report. Investments in bonds and notes of and net advances to associated companies increased $28,411,910.42. This increased investment represents loans by this Company to the associated companies for the extension of their telephone properties, after deducting the amount of $15,451,252.63 temporarily invested by this Company for associated companies until required by them. (p. 40.)

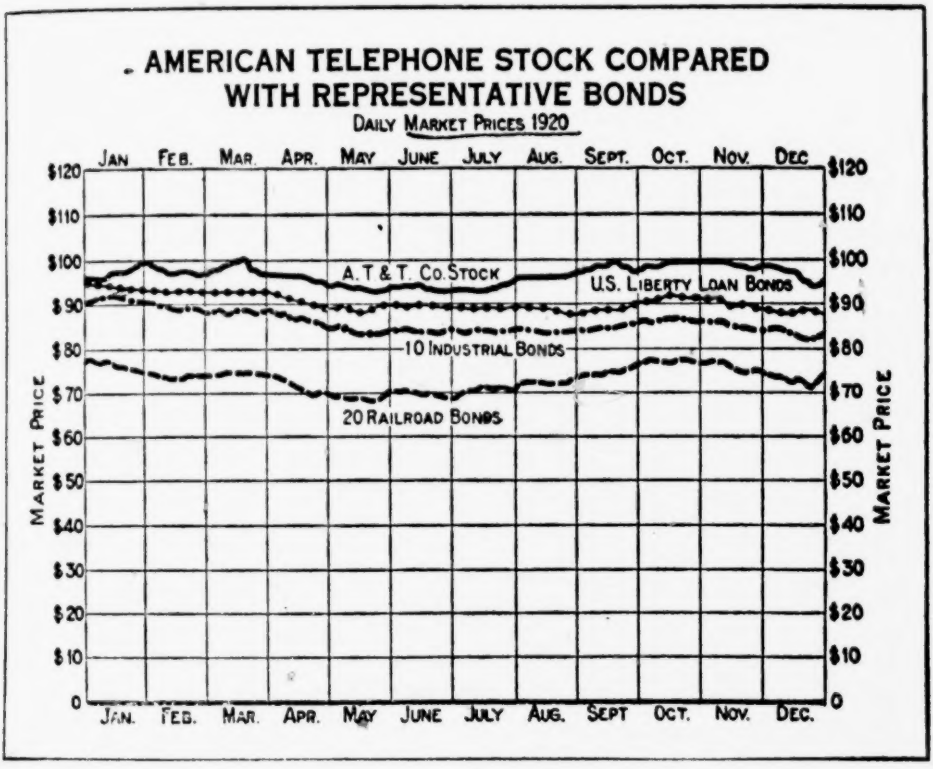
The item of Accounts Receivable from the United States Government, amounting to $9,483,715.52, which appeared in last year's report and which represented the balance due this company for the Bell System on December 31, 1919, as compensation during federal control, was received in full, with interest, in June, 1920. Concurrently this company made settlement with the associated companies for all amounts due them in respect of compensation during federal control. (p. 41.)

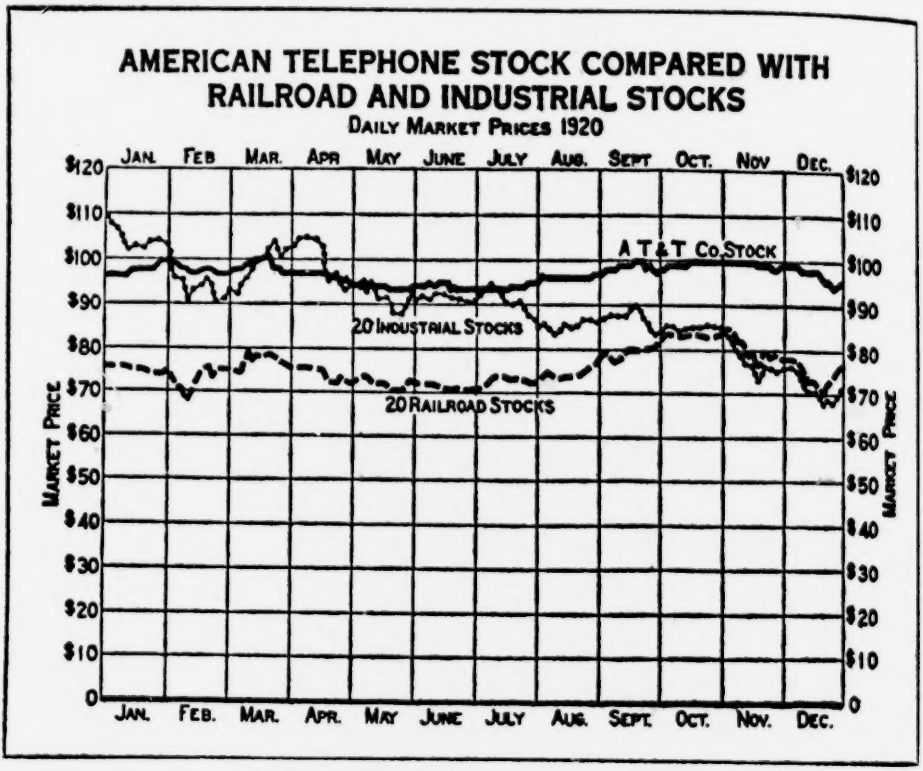
Accounts Receivable in Suspense, amounting to $10,227,973.34 in the 1919 report, were paid to this company during

the year out of the proceeds of the sale of the Central Union Telephone Company property. This company concurrently purchased the securities of the companies which acquired the property of the Central Union Company. (p. 41.)

The stock of the company as an investment security may be compared as to market stability with high-grade bonds of railroad and industrial companies, rather than with stocks as shown by the two charts following. (p. 42.)

Here follow the charts. (p. 42.)





The Second Stock Purchase Plan was made effective early in 1920, by which employees of one year's service or more in the Bell System are aided to become stockholders of this company to the extent of a limited number of shares each, for which they are paying out of their wages at the rate of $3 per share per month. Over 43,000 employees in all parts of the country are now paying for shares under this plan. (pp. 44-45.)

To the 139,448 stockholders of record, which number includes approximately 23,000 employees who already own stock of this company, there should be added some 20,000 out of the total of over 43,000 employees who are now paying for stock at the rate of a few dollars per month. Counting these employees, and also those persons whose stock is held for them in investment trusts and the like, there were at least 165,000 actual investors in stock in this company on December 31, 1920. (p. 45.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY.

Balance Sheet, December 31, 1919 and 1920.

ASSETS.

	Dec. 31, 1919	Dec. 31, 1920
Stocks of Associated Companies	$490,792,063.02	$524,445,954.92
Bonds and Notes of and Net Advances of Associated Companies	162,137,133.88	190,549,044.30
Stocks of Other Companies	53,562,188.73	57,990,057.22
Special Demand Notes	12,000,000.00	7,587,935.00
Telephones	21,287,848.93	23,876,520.60
Real Estate	3,138,119.01	3,775,407.74
Office Furniture and Fixtures	336,521.50	435,492.48
Long Lines Plant	82,178,606.58	95,136,361.47
Trustees — Employees' Stock Purchase plans	8,812,799.03	737,681.15
Current Accounts Receivable:		
Due from United States Government Account Compensation	9,483,715.52	.....
Other Current Accounts Receivable	8,737,763.55	8,697,431.03
Accounts Receivable in Suspense	10,227,973.34	.....
Temporary Cash Investments	36,574,185.40	.....
Cash and Deposits	27,512,170.11	26,636,360.24
	$926,781,088.60	$939,868,246.15

(p. 47)

1921

Upon the Bell Telephone System—that is, upon this company and its associated companies —the country depends for one of its indispensable services. No other agency undertakes to give a nation-wide telephone service. (pp. 5-6.)

The responsibility is upon us not only for the present but for the future of that service. We must provide the organization and the equipment to extend it to keep pace with the growth of the nation. (p. 6.)

Some utilities can give complete service to present users without extensions, but complete telephone service for present users involves the possibility of communication with new users. (p. 6.)

As the nation grows, therefore, the equipment must be extended, not only that people who want telephone service may have it, but that those having service may have complete service. (p. 6.)

Sound financing involves a safe proportion between capital and debt. The recognition of this principle in the financing of the Bell System before the war, enabled the Company during the war period, when conditions practically precluded new stock issues, to finance its extensions almost entirely by increases in debt. Return to the established principle, presented during 1921 the question of offering an additional issue of capital stock to the shareholders. (p. 6.)

Under the laws of the State of New York a new issue could not be made at less than par. Obviously then to make an issue successful the dividend must be enough to make the stock attractive at a premium, but any dividend rate must appeal to the public as reasonable; it must be earned with a fair margin and with a prospect of continuance. The stockholders' equity in the business was about $200 per share; $9 per year per share was less than 5 per cent upon the stockholders' equity in the business and would certainly not be considered an excessive return. That rate had been earned with a margin for a number of years and the prospects for the future were good. Due weight was given to the belief that the higher market price of the stock consequent upon a higher dividend rate, if fully justified by earnings, would react favorably in the cost of bond issues and other borrowings of the whole Bell System.

The conclusion was that 9 per cent should be established as the dividend rate. The event has justified the conclusion. (pp. 6-7.)

An announcement was made at the annual meeting that the directors intended to make 9 per cent the regular rate. This was followed May 10, 1921 by an offer of one share in five, making the total offering $89,819,500. Of this amount $83,790,200 was subscribed and paid for by the shareholders. The balance unsubscribed, $6,029,300, was sold in the open market at an average price of $112.54 per share. (p. 7.)

During the year $15,123,000 in stock has been issued in conversion of convertible bonds, making the total issued capital stock, December 31, 1921, $548,185,300. (p. 7.)

The function of Commissions in the administration of these laws strongly distinguishes them from courts. Courts decide controverted matters and endeavor to determine and establish legal rights through the application of strict legal rules. The Commission is an administrative board; its functions are business functions. The questions presented to a Commission are business questions and, within the limits which the law prescribes for the Commission's jurisdiction, are dealt with from the business and administrative standpoint. Concretely, when a man in Maine talks with a man in California, while only a small part of the service is performed in Maine, the ability to talk to California is a part of the service rendered in Maine. The Commission can take into account the fact that the telephone service rendered at any particular telephone involves a service which may be performed anywhere within the United States. Business considerations which would be foreign to the questions presented to a court are essential to the questions considered by a Commission. To obtain the best results, the Commission, within its jurisdiction, enjoys and exercises a broad discretion which takes into account all of the business factors involved in the questions presented to it. (pp. 11-12.)

The people depend upon your company for one of the great national services—the one entering most intimately into their domestic and commercial affairs. Your company must extend that service to meet the requirements of a growing population and a growing use. It must promote and develop the progress of the art upon which that service depends. It must be a satisfactory servant of the people. Aside from all laws, there arise out of this relationship minimum and

maximum limits for rates. The minimum must provide revenue enough so that your company can render its service worthily and abundantly. The maximum must not exceed what will meet the approval of a public willing to pay fairly for what it receives. It is not less fortunate for the public than for the company that the conservative financial structure of the Bell System fixes its requirements well within the limit permitted by law. (p. 12.)

In 1921, the associated companies earned 5.2 per cent on the book cost of their plant, which is considerably below what is considered by regulatory bodies and the public to be a fair return. Due, however, to the conservative financial structure of the system, with this rate of return on the telephone property of its associated companies, the American Telephone and Telegraph Company earned, including its equity in the undivided profits of the associated companies 12.6 per cent on its outstanding stock. As all the net profits of its associated companies were not distributed to the stockholders of those companies, your Company shows earnings for 1921 of 11.1 per cent on its outstanding capital stock. (p. 13.)

The following table shows the earnings per share available for dividends on the stock for each year since 1909:

1910	$10.34	1916	$ 9.77
1911	10.01	1917	9.48
1912	9.86	1918	9.97
1913	9.59	1919	10.05
1914	9.38	1920	11.72
1915	9.52	1921	11.10

Your company has consistently followed conservative financial and business policies during its entire history. Depreciation reserves have been accumulated and invested in the business; in the aggregate more than $38,000,000 in excess of par has been paid into the treasury in cash by the stockholders; at no time have all of the net profits been paid out in dividends, but a portion thereof has been retained in the business and invested in property. As a result of these policies, a financial standing has been established for the Company which enabled it to borrow part of the money required in the business through the sale of its bonds and other interest-bearing securities at rates of interest well below the dividend rate. Furthermore, it is not necessary, in respect of a substantial part of the Company's assets, represented by the investment of reserves and surplus, to pay either interest or

dividends, thereby making it possible, even with relatively low telephone rates and a low rate of earnings on telephone property, "used or useful" in the service of the public, to earn the dividend on your stock, with a margin for surplus. An understanding of these facts is fundamental to a correct understanding of the financial strength of your Company and the stability of its dividend rate. (pp. 13-14.)

It is our desire particularly to interest telephone users financially in the System. They can acquire stock of the American Telephone and Telegraph Company in the market and in some cases they can secure preferred stocks of the Associated Companies. We are inviting them to become partners in the business. (p. 14.)

The Bell Telephone System occupies a unique position, and one not generally understood, because it differs so widely in form of organization and in relation to the public and the investors, from other enterprises to which it might be expected to be similar. (p. 15.)

In the annual reports, which have grown to be vehicles of information to the public as well as to the stockholders, we have attempted to set forth the reasons why the structure of the System is what it is, what the relations of the parts are to each other, and all the other facts which should be available to present and prospective investors in the securities of the System. (p. 15.)

This is more than a plan to lay wider financial foundations for the Bell System, to raise some of the money needed for extensions of the service, or to create better relationships. It will contribute to the promotion of national thrift, to the spread of a broader knowledge of investment, and to the development of machinery to assist investors. It will facilitate and strengthen the activities of all sound and helpful investment agencies. The nation is our customer. Whatever promotes the prosperity of the nation promotes our prosperity. (p. 15.)

The attainment of our object will require continuous, intelligently directed effort. We have felt the need of an organization whose functions should be to disseminate information about Bell System securities to the public, especially to Bell telephone subscribers, and when desired, to advise intending investors and to facilitate their transactions in our stocks and securities. The Bell Telephone System occupies a unique position, and one not generally understood, because it differs

so widely in form of organization and in relation to the public and the investors, from other enterprises to which it might be expected to be similar. (p. 15.)

In the annual reports, which have grown to be vehicles of information to the public as well as to the stockholders, we have attempted to set forth the reasons why the structure of the System is what it is, what the relations of the parts are to each other, and all the other facts which should be available to present and prospective investors in the securities of the System. But the annual report is a periodical, while the history of the progressive utility must be a continuous story. No single issue of the report can tell the whole story without frequent repetition and continually increasing bulk. (p. 15.)

Therefore, with the conviction that it may, helpfully to the System, perform these services, we have organized the Bell Telephone Securities Company. Mr. D. F. Houston, who served in the Federal Government for eight years, first as Secretary of Agriculture and then as Secretary of the Treasury, and who before going to Washington had held the chief executive position successively in three educational institutions and had specialized in economics, particularly in banking and taxation, has become its President. (p. 15.)

Employees' Stock Plan

This Company has long been active in providing practical and progressive plans for promoting the welfare of its employees. One direction of these endeavors has been toward the encouragement of thrift and saving. To this end, Stock Plans under which employees might purchase stock of the Company on an installment payment basis have several times been offered to Bell System employees. These offers met with ready response, and as a result there were at the end of 1921 approximately 25,700 employees of the System included in the list of stockholders of this Company. (p. 16.)

The earlier offers, however, were in each case open for only a limited period. A step in advance has been taken during the past year by the introduction of the Employees' Stock Plan, dated May 1, 1921, whereby a continuous opportunity is given to Bell System employees to subscribe for and acquire stock of this Company. The principal provisions of this plan may be summarized as follows: (p. 16.)

(1) Any employee who has been continuously in the employ of the Bell System for six months is entitled to subscribe for stock, at prices not less than par, as fixed by this Company.

(2) There is reserved to the American Company the right at any time to change the terms upon which stock shall be offered under the Plan, and also the right to refuse to accept new subscriptions.

(3) The total subscriptions upon which any employee may be paying at any one time is limited to a number of shares equal to one share of stock for each $300, or fraction thereof, of his annual rate of pay, but no employee may subscribe for more than fifty shares in any one year.

(4) The subscription payments for the stock are made by deductions from the employee's wages at the rate of $3 per share per month. (p. 16.)

(5) Interest at the rate of 8 per cent compounded quarterly, is allowed on installment payments and credited to the employee's account. (pp. 16-17.)

(6) At any time after six months from the date of the initial deduction from wages under a subscription for stock, the employee may pay the balance then unpaid on account of all or any of the shares of stock under such subscription and receive the certificate of stock to which he then becomes entitled. (p. 17.)

(7) Provision upon equitable terms is made for cancellation of the subscription agreements where the service of the employee is terminated by death or otherwise and for withdrawals by employees continuing in the service, in order to enable them to meet their own special emergencies.

(8) The subscription price in effect on December 31, 1921, was $105 per share.

At the close of the year, more than 125,000 employees from all parts of the Bell System, including employees who are already stockholders, were paying for stock on subscriptions made under this Plan. This number of subscribers comprises 46 per cent of all employees of the System and is 58 per cent of the total number of employees who were eligible to subscribe under the provision of the Plan requiring previous continuous employment of at least six months. In addition, it is estimated that more than 3,000 employees who have not subscribed for stock under the new Plan are still paying for stock purchased under the Second Stock Purchase Plan. (p. 17.)

The results of the Plan evidence a sincere desire for saving and thrift among Bell System employees, as well as a firm faith in the continued successful operation of the Company. (p. 17.)

By means of the transcontinental line the connection was extended to San Francisco and thence south to Los Angeles where, by means of a radio telephone connection, the circuit was extended to Catalina Island, thirty miles distant in the Pacific. Satisfactory conversation was thus carried on between Catalina and Cuba, a distance of something over 5,500 miles. This is the greatest distance over which commercial telephone service has thus far been established. (p. 18.)

The Cuba cables are the longest deep-sea telephone cables in use, and embody in practical form a number of the recent scientific developments of our staff. To provide for the traffic expected, three of these cables were successfully laid. Each cable is capable of carrying simultaneously one telephone conversation and eight telegraphic messages. (p. 18.)

For connecting Cuba with the mainland, cables are employed because it has been found more economical to use them than to employ radio, and because they are more dependable and free from the interruptions and disturbances and the lack of secrecy which are encountered in radio operation. During the disturbed financial situation of the past year these cables proved of great value in international banking and business and have fully justified themselves as an extension of our service. (p. 19.)

During the year, our practical experience in the use of machine switching apparatus affords gratifying evidence that the operation of this new system is readily comprehended by the public, and that it can be depended upon to give the highest grade of service in those situations where, for economic or service reasons, it should be employed. (p. 19.)

At the end of the year, there were over 13,380,000 owned and connected stations in the Bell System—nearly two-thirds of all the telephones in the world. Practically any one of these 13,380,000 telephones can be connected with any other telephone in the Bell System. During 1921 alone, the net gain in owned and connected telephones was 778,284, and viewed from the standpoint of the value of the service to the user, this means that from each telephone connected with the Bell System it was possible, at the end of 1921, to reach over three-quarters of a million more homes and places of business than at the beginning of the year. (p. 26.)

WESTERN ELECTRIC COMPANY, INCORPORATED

In the very beginning of the business of giving telephone service—over forty years ago—it was foreseen by the management that in connection with the use of the telephone there would be developed many varieties of auxiliary and related apparatus and that unless this development was controlled these necessary devices would be likely to be produced by different manufacturers and patented by them, leaving the operating telephone companies in time at their mercy. To avert this danger, and as stated in the annual report of 1882 "to insure the highest standards," a combination was arranged of some of the manufacturers of that time into what became the Western Electric Company, of which the American Bell Telephone Company, our predecessor company, owned the control, and going beyond this, a contract was made between the companies through which the control of patents, present and future, was vested in The American Bell Telephone Company. The contract also specified that the manufacturing company should sell to all licensees (the Associated Companies) at uniform prices which should not be unreasonable. (p. 28.)

There was no requirement of the Associated Companies that they should buy anything of the Western Electric Company, so that what was accomplished was to make the manufacturing company depend upon the operating companies rather than to make the operating companies depend upon the manufacturing company. (p. 28.)

Starting from the beginning the Western Electric Company gradually became the manufacturer of nearly all of the apparatus in the Bell System. That fundamental work has been of inestimable value in the development of the Bell System. Out of it have grown the advantages foreseen and others equally unforeseen. The closest cooperation through more than a generation has made the Western Electric Company virtually a department of the Bell System exercising the function of manufacturer, purchasing agent and storekeeper. (pp. 28-29.)

A large telephone central office well designed is housed in a building planned to fit the switchboard. The switchboard itself is a complicated and expensive apparatus requiring two or three years for its manufacture and installation. It must be capable of extension and of operation in connection with

other similar switchboards in other offices, so, that each purchase of a switchboard is a virtual committment to its manufacturer for extensions and other switchboards. To a greater or less extent this is true of all of the apparatus going into our service. The advantage of a control in the interest of economy in construction and operation, over the patent rights and prices of the manufacturer must be apparent. (p. 29.)

Furthermore there is the advantage of control over production. The manufactures of the Western Electric Company are designed for our requirements with a view to the greatest economies in construction of plant and in maintenance and operation. They are produced in quantities we specify in fireproof buildings where every precaution is taken to insure continuity of production. They are of uniform standards so that the cost of maintenance and repairs is at a minimum. (p. 29.)

The relation which has grown out of the contract and financial interest established in 1882 has therefore provided for the Bell Telephone System a controlled source of supply of the apparatus and material needed in the construction, maintenance and operation of its plant. (p. 29.)

Its compensations have been fixed on the basis of reasonable but steady return on investment rather than that of the high but fluctuating profit on the sales of an uncontrolled manufacturer. No public utility has paid less proportionately in profits to the manufacturers of its equipment and such profits as have been paid, through our stock ownership, remain in the Bell System for the advancement of the utility. Volume of sales and profits therefrom, the goal of most manufacturers, were of secondary importance, while the needs of the service became the predominant factor in working out the solution of the problems which confronted the Bell System. The telephone users have been materially benefited by this arrangement. (p. 29.)

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The apparatus, designed especially for its requirements, can be specified by our engineers with regard only to efficiency and economy. There is ample protection as to patent rights, prices and continuity of supply. (pp. 29-30.)

The expense of selling is eliminated. The use of apparatus is determined solely by its merit and there is afforded an opportunity for the greatest economy in the routines of purchase and distribution. (p. 30.)

The sales billed by the Western Electric Company during the year 1921 aggregated $189,800,000, of which $135,600,000 were to the Bell companies and $54,200,000 were to other customers. This is an increase over the previous year of 19 per cent to Bell companies and a decrease of 41 per cent to other customers. It fairly indicates, on the one hand, the activity of the telephone companies in providing additional plant and, on the other hand, the severe depression that characterized the electrical jobbing business during 1921. (p. 30.)

The company reduced its floating indebtedness during the year by $14,000,000 and increased its cash on hand by $5,400,000, a total improvement of about $19,400,000 in its financial position. (p. 30.)

A map showing the name and territory of each of the associated companies of the Bell System appears on page 4. These companies together with the American Telephone and Telegraph Company comprise the Bell Telephone System.

The combined surplus and reserves of the Bell System, after excluding all intangible assets from the balance sheet shown above, are $506,123,216, an increase of $62,084,013 over the corresponding figure for 1920. They represent approximately 27 per cent of the total assets, and have been invested in productive property. On the investment no capital charges accrue for either interest or dividends. (p. 36.)

The earnings of the American Telephone and Telegraph Company as shown for the years 1920 and 1921 include, in addition to the earnings of the long-distance lines, dividends on the Company's investment in stocks of its Associated Companies, interest on bonds and notes of and advances to Associated Companies, interest and dividends from investments in other companies, earnings under the general service contracts with associated and other companies for the furnishing of instruments and services, and other miscellaneous revenues. (pp. 36-37.)

Of the 186,342 stockholders of record, approximately 25,700 are employees of the Bell System. Including employees who are already stockholders of record, there are now over 128,000 employees of Bell System Companies and their subsidiaries, who are paying for stock at the rate of a few dollars per month under the Second Stock Purchase plan made effective early in 1920, and the Employees' Stock plan dated May 1, 1921. (p. 41.)

Its unfilled orders on hand at the end of the year aggregated about $76,000,000, as compared with $83,000,000 on December 31, 1920. Its estimates indicate a volume of business in 1922 substantially the same as in 1921. (p. 30.)

The funds supplied by these investors in the stock and other securities of your Company, have been used for the building and extension of telephone plants in every section of the United States. (p. 41.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY BALANCE SHEET, DECEMBER 31, 1920 AND 1921.

ASSETS.

	Dec. 31, 1920	Dec. 31, 1921
Stocks of Associated Companies	$524,445,954.92	$ 609,628,197.23
Bonds and Notes of and Net Advances to Associated Companies	190,549,044.30	165,236,355.07
Stocks of Other Companies.	97,990,507,22	65,343,285.25
Special Demand Notes	7,587,935.00	2,523,000.00
Telephones	23,876,520.60	26,963,109.79
Real Estate	3,775,407.74	8,422,092.57
Office Furniture and Fixtures	435,492.48	520,408.90
Long Lines Plant and Equipment	95,136,361.47	101,946,665.30
Trustees—Employees' Stock Purchase Plan	737,681.15	1,866,025.38
Current Accounts Receivable	8,697,431.03	8,758,081.75
U. S. Certificates of Indebtedness	.....	29,732,076.78
Cash	26,636,360.24	29,732,364.94
	$939,868,246.15	$1,050,330,662.96

(p. 43.)

1922.

The administration of an institution like the Bell Telephone System with its responsbility for a service entering into all of the ramifications of the domestic and commercial life of millions of users and with its responsibility to hundreds of thousands of stockholders and security holders, to work effectively, must be actuated by a continuous policy or motive and must make every line of action conform to a program directed towards carrying through that policy. Changes in times and conditions may properly affect the program but the underlying policy must be constant. (p. 5.)

The function of the institution is to give service. Its policy is to subordinate all other considerations to giving a satisfactory service. Service to be satisfactory must be of the scope and quality desired, and it must be worth all and more than it costs. (p. 5.)

The service we render is to furnish facilities for intercommunication, and there is no service which enters more largely than intercommunication into family and social life and into the development and operation of commercial activities. (p. 5.)

The country we serve differs from any other in the world. It covers an immense area, and but one language comparatively free from dialects is generally spoken. Family, social and commercal interests are widespread. They are not bounded by city, county or state lines, and not entirely by the boundaries of the nation. Telephone service to be satisfactory can be limited by no narrower boundaries. (p. 5.)

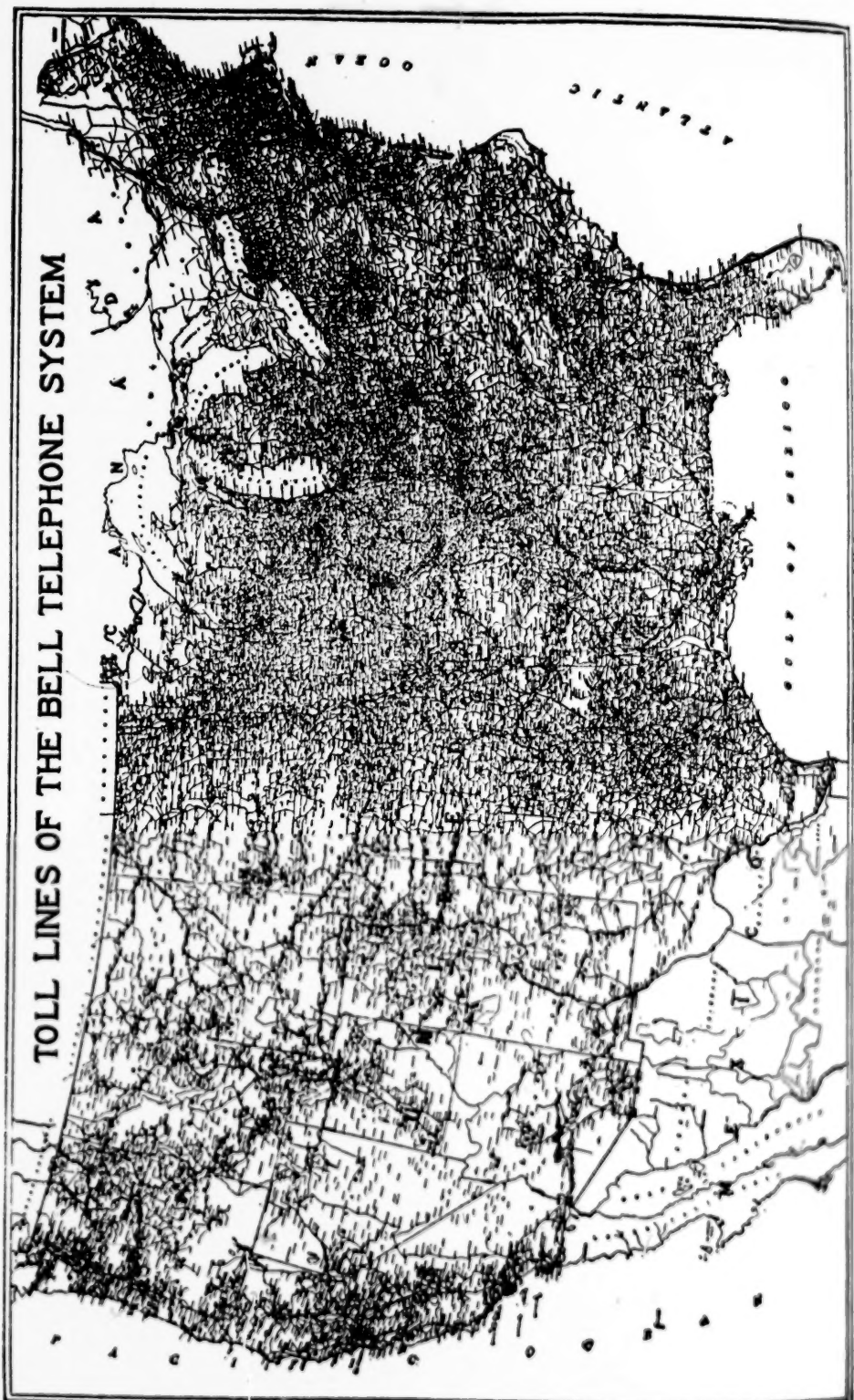
The service must not only be widely extended, covering the whole country, but in each community it must be available by a subscriber's line or pay station to the whole community. Telephone service must be available to everyone everywhere in the country for communication with anyone anywhere in the country. That is our objective as to the scope of the service. (pp. 5-6.)

Furthermore, there is a condition peculiar to this institution which has to be borne in mind. The public has no opportunity of choice between the service we furnish and another similar service. We alone furnish a nation-wide telephone service. In order to be satisfied the public must be convinced

that we are operating economically and efficiently and furnishing the service at a reasonable charge.

That the other requirement of satisfactory telephone service—that it should be worth more than it costs—is amply met, is proven by the continued demand for more telephones with no effort of salesmanship except the effort to continually improve the service. (p. 6.)

The extension of the scope of the service depends first upon there being a demand for it. It must be good service. It must be worth more than it costs. (p. 6.)


TOLL LINES OF THE BELL TELEPHONE SYSTEM

EXCHANGES OF THE BELL TELEPHONE SYSTEM
OWNED AND CONNECTING

It is necessary to get as accurate a picture as possible of the requirements for telephone service in each locality for successive years in the future. Each operating company makes each year its estimate of growth in each of the following five years, these estimates being the sum of estimates for each locality in which it operates. The sum total of the estimates of the operating companies makes up the estimate of the Bell Telephone System which furnishes us a basis for studies as to the probable requirements for money, material and labor for new construction. (p. 9.)

A national service can exist only through an organization which provides for a uniform policy and coordinated action. Uniformity of policy and cooperation come to the Bell System through contract relations and community of ownership. The American Telephone and Telegraph Company owns directly or indirectly all of the voting stock of 14 associated companies, 78 per cent of nine others and 31.5 per cent of two others. (pp. 9-10.)

The operations of the Bell Telephone System is in the very capable hands of the regional operating organizations, the Associated Companies. (p. 11.)

It is the responsibility of the headquarters organization —your Company,—to make such provisions for the future as will establish more firmly each year the standing and soundness of the System as a public institution. (p. 11.)

It is our aim also that every employee in every division and rank in the service shall take such an attitude toward the part of the public with which he or she comes in contact as can only go with interest and pride in the service. With that end in view, not only ownership of stock is encouraged but every possible opportunity is taken to inform all of the employees, whether stockholders or not, as to what we are trying to accomplish and why, and as to what they can individually and jointly contribute to that accomplishment. (p. 11.)

We have gone into the exposition of our policy and methods at some length in order that our stockholders may know that our various lines of activities, meritorious we believe by themselves, are not unrelated but are parts of a deliberately planned programme intended to produce a definite result, which is an institution for public service, satisfactory to the public and, therefore, on a permanent and sound foundation in the interest of the stockholders and the public. (p. 12.)

Financial Results.

The investment of the Bell System in plant and equipment, including construction in progress, as carried on the books of the companies as of December 31, 1922, aggregated $1,758,000,000, but as stated in previous reports the true value of this investment is much greater than its book cost. (p. 12.)

The twenty-five Associated Companies (excluding your Company) earned 5.6 per cent on the book cost of their plant during 1922, but based on the true value of the property, a lower return was realized. This earning, while still below what is considered by regulatory bodies and the public to be a fair return, represents a slight improvement over 1921. There are some areas where earnings are too low, and in them every effort is being made for improvement. (p. 12.)

Not including its *equity in the undivided profits* of the Associated Companies, your Company in 1922 earned 11.14 per cent on its average outstanding capital stock, compared with 11.10 per cent for 1921. About *20 per cent of the net income* of the Associated Companies was retained by them as undivided profits and has been invested in their respective plants, i. e., in telephone property required to meet the increased service demands. While the average rate of return on the book cost of the Associated Companies was 5.6 per cent, due to the conservative structure of the Bell System, with a return of only 4.7 per cent the American Telephone and Telegraph Company would still have earned—but without any margin for surplus—its 9 per cent dividend. (p. 12.)

Taking into account the actual amounts paid in on issued capital stock, the surplus earnings and other company funds invested in the business, and accumulated surpluses of the associated and controlled companies, it is conservatively estimated that the equity represented by the stock of your Company now equals approximately $190 per share. This figure gives full effect to all new capital stock issued during the year, including that issued under the offer of August 24, 1922. (p. 13.)

A knowledge of these facts is fundamental to a correct understanding of the financial strength of your Company and the continued stability of its dividend rate. (p. 13.)

BELL TELEPHONE SECURITIES COMPANY.

The Bell Telephone Securities Company was organized by the American Telephone and Telegraph Company to advise intending investors and facilitate their transactions in Bell System securities. The American Company owns all the stock of the Securities Company. During the year the Bell Telephone Securities Company actively pursued its task of disseminating information about Bell System securities to the public and especially to telephone users, and of aiding to secure a more widely distributed ownership of securities and particularly of the stock of the American Telephone and Telegraph Company. Through a variety of pamphlets issued in great numbers for financial institutions but largely for the general public, through advertisements, through letters increasing in number from month to month, and directly through personal contacts between employees of the Associated Companies and the public, it has reached many thousands of men and women in all parts of the Union with information bearing on the Bell System organization and service and the character and safety of Bell System securities. It has also directly or indirectly aided a great number of investors, who desired to do so, to secure stock of the American Company; and in this work it had the effective and cordial cooperation of the Associated Companies and of local banks and investment houses. It is noteworthy that in about half of the country, mainly in the West and parts of the South where knowledge of Bell System securities has not been as generally diffused as in some other parts of the country, as a result of these efforts more than 25,000 people became sufficiently interested in stock of the American Company as an investment to purchase in the market 306,881 shares at an approximate cost of $36,800,000. (p. 15.)

To increase the number of people financially interested in the Bell System and to develop a fuller knowledge and better understanding of its operations, four of the Associated Companies, the Southwestern, The Wisconsin, The Chesapeake and Potomac of Baltimore City, and the New York Company offered to the public in their territories, limited amounts of their preferred stock. The effort was made by each company to place its stock principally with telephone users in its territory. The stock of the first three companies was sold through the employees of the companies and the local banks and investment houses. That of the New York Com-

pany was placed exclusively through employees. It was found that the employees reached individuals who do not ordinarily invest in securities or normally form the constituency of banks and investment houses. (pp. 15-16.)

The amount of the cumulative preferred stock offered in each case, with the dividend rate, was as follows:

Southwestern Bell Telephone Company 7% . . . 121,656 shares
Wisconsin Telephone Company 7% . . . . . 50,000 shares
Chesapeake & Potomac Tel. Co. of Baltimore City 7% . . . . . 30,000 shares
New York Telephone Company 6½% . . . . . 250,000 shares
(p. 16)

In the aggregate, applications were received for 1,184,550 shares from 156,270 persons. On account of over-subscriptions it was necessary in the last three territories mentioned, to make allotments. The final result for the four companies was the distribution of 451,656 shares to 151,510 purchasers. Of this total number of shares, 282,834 were paid for in full by 64,091 persons, and 168,822 are being paid for in monthly installments by 87,419 investors. (p. 16.)

The fact that it was a new experience for the state commissions to be asked to approve increased telephone rates, coupled with the feeling on the part of many commissions that conditions would soon right themselves and take care of a revenue situation admittedly unfair to the companies for the time being, made the problem harder than it should have been. This was not unnatural but it was unfortunate. The companies of the system adopted and pursued a policy that was patient, fair and most conservative. Rate increases were made or sought quite generally throughout the country, never more than were reasonable and generally substantially less than the facts would justify. (p. 17.)

To test these improvements a new series of trans-oceanic experiments was undertaken late in the year, previous experiments of this kind having been successfully conducted as described in our report for the year 1915. From these recent experiments valuable data have already been obtained showing the variation in intensity in trans-oceanic speech during the periods of daylight and darkness and twilight and under different conditions of weather.

During the night of January 14-15, 1923, for a period of two hours, long telephone messages were sent from the offices of the American Telephone and Telegraph Company, 195

Broadway, New York City, through the Rocky Point station of the Radio Corporation. The speakers at New York were distinctly heard and understood in London and their voices were easily recognized by representatives of civic, scientific and commercial interests and of the press. (pp. 18-19.)

Previous reports have referred to the plans for employee representation in the associated companies. These plans naturally vary in different companies in accordance with the preferences or desires of the employees in each company. The general result of the various plans, however, is much the same in that they practically lead to regular meetings for conference and discussion between representatives of the employees and representatives of the management. These meetings have come to be recognized as a regular and valuable function in the conduct of the company's business. (pp. 21-22.)

The result of the activities of these joint conference committees is proving to be more far-reaching than was anticipated at the outset. (p. 22.)

The primary purposes of the plans were to provide the machinery for establishing a better acquaintance and more sympathetic understanding between the management and the other employees; and to afford ready opportunity for individuals or groups of individuals to discuss with the management any policy or practice of the company which directly or indirectly affected the employee, his relations to the company or the conditions under which he performed his work. (p. 22.)

WESTERN ELECTRIC COMPANY, INCORPORATED.

It is a feature of telephony on the national scale that every part of the widespread physical plant must be related to every other part in order that intercommunication may be universal and reliable. Thus while the technique is advancing and the plant is expanding, both design and construction must harmonize with what already exists and must look forward to the future. Furthermore, every piece of equipment must be designed with a view to quantity production, ease of shipment and installation, reliability of operation and simplicity of maintenance, as well as its first cost. It follows that during the entire design process there must be a continuing contact of minds skilled in operation, in invention and in manufacture. This contact is maintained in the Bell System because the different companies which are necessary

under our laws and which are responsible for operation and for manufacture of equipment are bound together as parts of one System with a common purpose and a coordinated programme. (pp. 25-26.)

It was a recognition of this underlying principle that led to the acquiring many years ago of a controlling interest in the Western Electric Company and the gradual evolution during succeeding years of a relationship which has resulted in that company becoming the manufacturing and purchasing department of the Bell System. About 98 per cent of its voting stock is owned by the American Telephone and Telegraph Company. (p. 26.)

The expansion of the company during the past few years has been rapid in order to keep pace with the rapidly increasing demands for telephones and telephone equipment. Important additions have been made to its principal manufacturing plant at Hawthorne (near Chicago), Illinois, and a tract of about fifty acres at Kearny, New Jersey, has been acquired, where it is proposed to build an auxiliary manufacturing plant.

The sales billed by the company during the year 1922 aggregated $210,900,000, which is the largest year on record. Of these sales $158,600,000 were to the Bell Companies and $52,300,000 were to other customers.

The company's first mortgage bonds, $15,000,000, matured December 31, 1922, and were paid out of the proceeds of 150,000 shares of common stock sold for that purpose. The 7 per cent bonds due in 1925, $28,600,000, were called for redemption at 102 on October 1st in accordance with their terms. Of the total issue $3,920,000 were paid and $24,680,000 were converted into 7 per cent preferred stock. The company's floating debt was reduced during the year from $29,500,000 to $12,600,000.

At the end of the year the unfilled orders on hand aggregated about $62,000,000 and the company's prospect for 1923 is a volume of business at least as large as that of 1922. (p. 26.)

There is now one Bell telephone station to each 8 of the total population in the United States, as compared with one station to each 13 of the population ten years ago, and one to each 90 of the population in 1900. (p. 27.)

DISTRIBUTION OF CAPITAL STOCK.

The number of shareholders of record on December 31, 1922, was 248,925, an increase of 62,583 during the year. This comprises the largest increase in any year in the history of the Company. (p. 39.)

Of the 248,925 stockholders of record, approximately 46,700 are employees of the Bell System. Over 94,000 employees of the Bell System companies and their subsidiaries are now paying for stock at the rate of a few dollars per month under the Employee's Stock Plan dated May 1, 1921. Some of this number are already stockholders of record, the remainder will become such upon completion of all installment payments. (p. 40.)

The funds supplied by these 248,925 partners in the business as well as those supplied by investors who have acquired other securities of the Bell System, have been used for the building and extension of telephone plants in every section of the United States. (p. 40.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY.

Balance Sheet, December 31, 1921 and 1922.

ASSETS.

	Dec. 31, 1921	Dec. 31, 1922
Stocks of Associated Companies	$ 609,628,197.23	$ 662,529,358.73
Bonds and Notes of and Net Advances to Associated Companies	165,236,355.07	115,671,082.98
Stocks and Notes of and Advances to Other Companies	65,343,285.25	105,427,223.85
Special Demand Notes	2,523,000.00	.....
Long Lines Plant and Equipment	101,946,665.30	108,757,168.05
Telephones	26,963,109.79	29,666,203.92
Real Estate	8,422,092.57	11,665,548.99
Office Furn. and Fixtures	520,408.90	703,935.60
Trustees--Employees' Stock Purchase Plan	1,866,025.38	.....
Accounts Receivable	8,758,081.75	9,831,006.15
Temporary Cash Invest'nts	29,391,076.78	93,162,766.73
Cash	29,732,364.94	26,517,547.38
	$1,050,330,662.96	$1,163,931,842,38

(p. 43)

1923

CHRONOLOGY.

1875—First words transmitted by telephone.

1876—First complete sentence transmitted by telephone.
First conversation by overhead line, 2 miles—Boston to Cambridge.

1880—30,872 Bell telephone stations in the United States.
Conversation by overhead line, 45 miles—Boston to Providence.

1881—Conversation by underground cable, ¼ mile.

1884—Conversation by overhead line (hard-drawn copper), 235 miles—Boston to New York.

1890—211,503 Bell telephone stations.

1892—Conversation by overhead line, 900 miles—New York to Chicago.

1900—676,733 Bell telephone stations owned and connected.

1902—First conversation by long-distance underground cable, 10 miles—New York to Newark.

1906—Conversation by underground cable, 90 miles—New York to Philadelphia.

1910—5,142,692 telephone stations in Bell System.

1911—Conversation by overhead line, 2,100 miles—New York to Denver.

1913—Conversation by overhead line, 2,600 miles—New York to Salt Lake City.
Conversation by underground cable, 455 miles—Boston to Washington.

1915—First conversation by transcontinental line, 3,650 miles—Boston to San Francisco.
Speech transmitted for the first time by radio telephone from Arlington, Va., across the continent to San Francisco, over the Pacific to the Hawaiian Islands, and across the Atlantic to Paris.

1920—11,795,747 telephone stations in Bell System.

1921—Conversation by deep sea cable, 115 miles—Key West, Fla., to Havana, Cuba.

First conversation between Havana, Cuba, and Catalina Island by submarine cable, overhead and underground lines and radio telephone—distance 5,500 miles. Extension of Boston-Philadelphia cable to Pittsburgh—total distance 621 miles. President Harding's inaugral address delivered by loud speaker to more than 100,000 people.

Armistice Day exercises at burial of unknown soldier delivered by means of Bell loud speaker and long lines to more than 150,000 people in Arlington, Va., New York and San Francisco.

1922—Ship-to-shore conversation by wire and wireless between Bell telephones in homes and offices and the S. S. America 400 miles at sea in the Atlantic.

1923—Successful demonstration of trans-oceanic radio telephony from a Bell telephone station in New York City to a group of scientists and journalisits in New Southgate, England.

First broadcasting of a presidential message to Congress, December 6.

1924—15,000,101 telephone stations in Bell System. (p. 1.)

THE BELL TELEPHONE SYSTEM
SHOWING TERRITORIES OF THE ASSOCIATED OPERATING COMPANIES
—KEY—
Operating Headquarters
Boundaries of Operating Units
Corporate Boundaries
State Boundaries
NEW YORK TEL CO
THE BELL TEL CO OF PENNSYLVANIA
THE OHIO BELL TEL CO
MICHIGAN BELL TEL CO
INDIANA BELL TEL CO
ILLINOIS BELL TEL CO
WISCONSIN TEL CO
NORTHWESTERN BELL TEL CO
SOUTHERN BELL TEL & TEL CO
CUMBERLAND TEL & TEL CO
SOUTHWESTERN BELL TEL CO
THE MOUNTAIN STATES TEL & TEL CO
THE PACIFIC TEL & TEL CO
BELL TEL CO OF NEVADA

(p. 4)

This strength is reflected by the fact that dividends have been earned with a margin, although the average rate of earnings on the book cost of the property of the associated companies during 1923 was only 5.4 per cent. (p. 12.)

For the information of many thousands of new stockholders, it is incumbent upon us to devote some space in these reports to an explanation of the relations of the company to the nation-wide operating organization which we call "The Bell Telephone System" and to such other explanations as are necessary to inform them of the sources of revenue of the Company, the purposes for which it makes expenditures and the general policies and programs which actuate it. * * *

Since the beginning of telephone service forty-six years ago, the purpose has been to create and maintain a service available in any part of the country to furnish telephone communication with any other part of the country. The Bell Telephone System embraces all of the agencies through which that is accomplished. (p. 5.)

It consists of:

1st. Your Company, which owns and operates the National System of Long-distance telephone lines. (p. 6.)

2nd. The Associated Telephone Companies, in which your Company is a stockholder, owning directly or indirectly all of the common stock of 14 companies, a majority in nine companies, and a minority in two companies. The Southern New England Telephone Company and The Cincinnati and Suburban Bell Telephone Company.

These associated companies operate the local service and the local telephone lines in communities served by 10,400,000 stations. (p. 6.)

3rd. The connecting companies, which are locally owned and operate 4,600,000 stations. (p. 6.)

4th. The Western Electric Company, Incorporated, the manufacturing and supply organization of the Bell System; in this corporation your company is a stockholder to the extent of over 98 per cent of the common stock.

Your Company is a minority stockholder in The Bell Telephone Company of Canada and connects with its lines and stations.

It owns 50 per cent of the stock of the company which owns and operates the telephone cables between Florida and the Island of Cuba.

It owns all of the stock of the Bell Telephone Securities Company, which was organized to facilitate a widespread investment in the stock and securities of your Company and its associated companies, particularly by giving aid and information to intending investors. (p. 6.)

Your Company is, therefore, to some extent an operating company and to a greater extent a company owning securities of operating companies, owning 91 per cent of the voting stock of the companies which own and operate about 70 per cent of the telephone stations in this country. (p. 6.)

Your Company's principal relation to the country's telephone service is as the headquarters organization of the Bell Telephone System. By contracts it is charged with the performance of certain services which have grown in effect into the development of a single policy and program for the associated companies, and which include furnishing and maintaining telephone instruments, providing interconnection between regional operating companies by long-distance lines, temporary financing and aid in permanent financing, development of the art, patent protection, standardization of methods and materials, and other services which can be more economically and efficiently carried on by one agency for all than by each individually. (p. 7.)

By virtue of stock ownership and contracts and the relations which grow out of them the Bell System operates practically as a single organization offering telephone service to the people of this country without limitation of distance or property ownership. By its leadership in the art of telephony all that science and invention have made possible is available for use throughout the Bell System. (p. 7.)

The associated companies make continuously such additions to their plant as are necessary to enable them to extend the service to new patrons. (p. 7.)

These additions are mainly financed by temporary borrowings from this Company, and these borrowings are liquidated later when permanent financing by the issue of either stock or bonds puts the borrower in funds. (p. 7.)

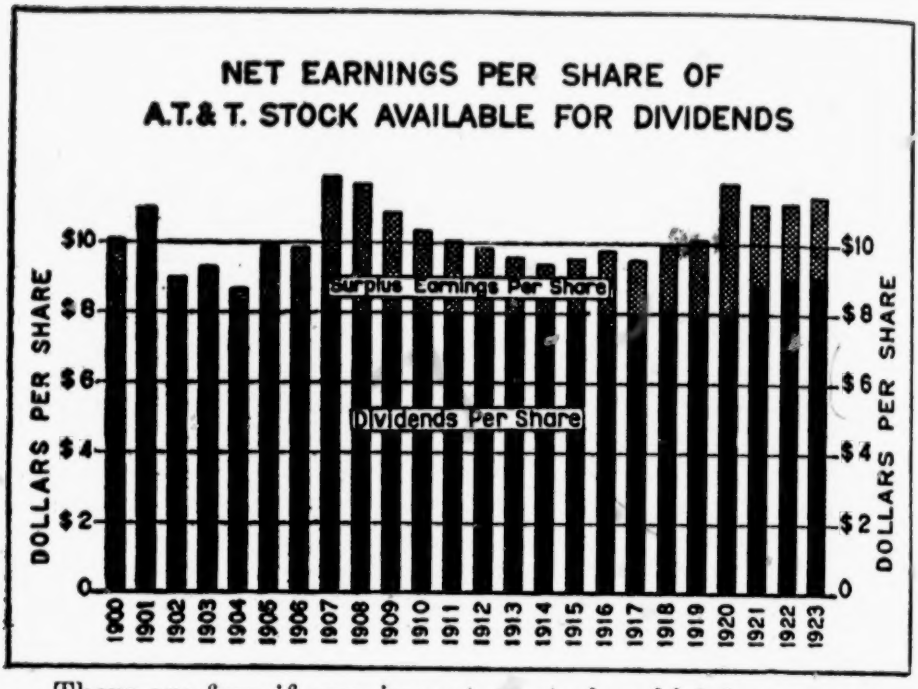
The earnings of this Company come mainly from dividends, interest on funds advanced to the operating companies, interest on temporary investments, payments by the associated companies for services and use of telephone instruments, and revenues from the operations of its long-distance lines. (pp. 7-8.)

The expenses include the expenses of the operating organization, the maintenance of telephones and very large expenditures for maintenance of services, it being part of the company's policy, as well as an obligation to the associated companies, to maintain a continuous program of development and research in order not only to advance the progress of science applicable to the art of telephony but also to apply all science, as it develops, to that art, as it may serve to reduce the costs and to widen or improve the telephone service. Similarly, in all departments of administration and operation it is our function to recommend to the associated companies not only such policies, acts and practices as may serve to enable them to meet the demand for service as it is but also to improve it and broaden its scope. (p. 8.)

The improvement in the quality of the service and its wider range, the fact that its value is greatly in excess of the charges made for it, the movement and increase of population and the higher standard of living, have all combined to create a demand for service which has taxed all available resources in men and material. (p. 8.)

We consider it of the highest importance that the ideals, policies, practices and financial results of the operations of the Bell Telephone System should be known and understood by the public it serves. Besides the usual methods of obtaining publicity as to these matters, we have had the benefits of the co-operation of the employees in their daily contacts with telephone users and to that assistance we credit no small part of the increasing confidence in the good faith of the system to the public. (pp. 8-9.)

Not including its equity in the undivided profits of its associated company—of whose voting stock your Company owns over 10 per cent—your Company in 1923 earned 11.35 per cent on its average outstanding capital stock, compared with 11.14 per cent for 1922. (p. 11.)



There are few, if any, important stocks which have greater stability as to earnings than the stock of your Company and its market stability may be compared with high grade bonds, or railroad and industrial companies rather than with stocks. (p. 12.)

On December 31, 1923, the Bell Telephone System, *i. e.*, your Company and its twenty-five associated operating companies, had an investment in plant and equipment, including construction work in progress, the book cost of which was $2,013,000,000. However, the true value of this investment is much greater than its book cost, as has been shown by the results of numerous valuation findings by state commissions and courts. Including working capital and other assets with plant and equipment, and deducting current liabilities, the book cost of the net assets used in the business and devoted to earning interest and dividends on the outstanding securities of the Bell System amounts to approximately $2,287,000,000, or more than 139 per cent of the aggregate amount of securities on which interest and dividends must be earned and paid. (p. 12.)

It has been the constant aim of the management to establish for the Bell System a sound and conservative financial struc-

ture so that service may be furnished at as low a cost as is consistent with the maintenance of a high grade of service. The uniform practice throughout the entire history of the Bell System has been to retain in the business each year a portion of the net income, rather than to distribute the entire amount in dividends. By this practice, together with the sale of its securities at a price in excess of par, a surplus has been created which adds materially to the financial strength back of the securities outstanding. (p. 12.)

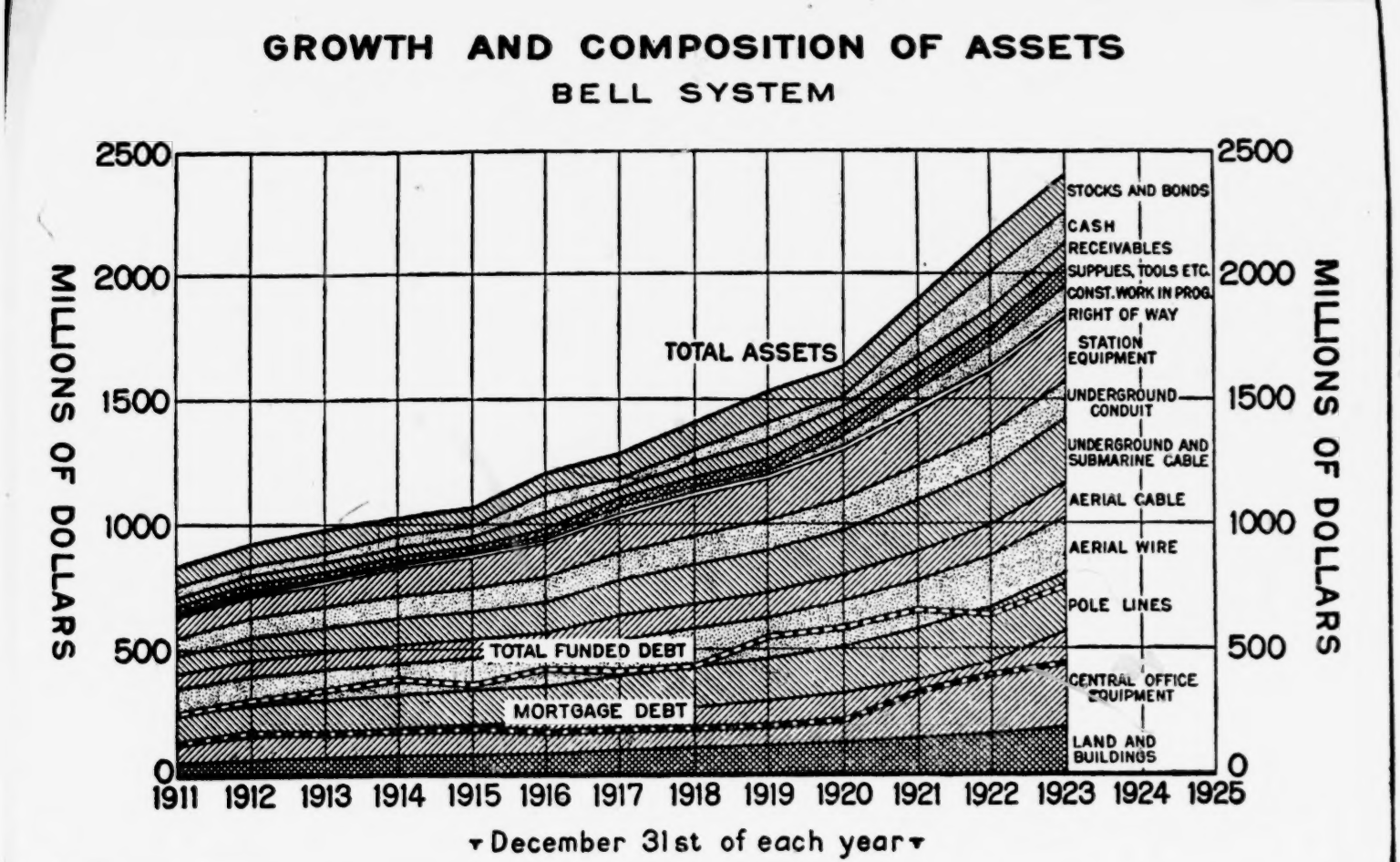
This strength is reflected by the fact that dividends have been earned with a margin, although the average rate of earnings on the book cost of the property of the associated companies during 1923 was only 5.4 per cent. (p. 12.)

The steady and continued growth of the assets of the Bell System and their composition are shown by the chart appearing on page 14. The uniformity of growth shown by this chart gives evidence of the well-balanced yearly construction programmes which have governed this development throughout all sections of the United States in answer to the gradually increasing dependence on the telephone as an indispensable necessity in the home and in the conduct of business. The two superimposed broken lines show the mortgage debt and total funded debt in comparison with plant and equipment and total assets. On December 31, 1923, the mortgage debt was but slightly in excess of $442,000,000 after including debenture bonds of associated companies now secured by mortgages, and total funded debt was about $752,700,000, while net assets, after deducting current liabilities, were approximately $2,287,000,000, or, stated in terms of the percentage relationship, mortgage debt was 19 per cent and total funded debt was but 33 per cent of the net assets of the Bell System. This relationship of debt obligations to net assets has not been materially different throughout the twelve-year period shown on the chart.

The major items of new financing and the changes in the several classes of capital obligations during the year 1923 are described on page 34 of this report.

Nearly 85 per cent of the assets of the Bell System are comprised of telephone plant and equipment, and, while repairs are made currently to maintain this property in an efficient operating condition, practically the entire plant and equipment comprising these assets is ultimately retired by reason of causes such as wear and tear, exposure to the ele-

ments, obsolescence, inadequacy, public requirements, or storms and other casualties. Depreciable property devoted to the telephone business is thus used up in the rendering of telephone service, and its cost (less any salvage recovered) is a part of the cost to the companies of furnishing that service which must be recovered during the service life of the property. For the purpose of meeting this expense, it is the policy of Bell System companies, long ago established, to make proper and adequate uniform charges therefor month by month against current earnings. These charges against earnings to cover depreciation expense are concurrently credited to the balance sheet liability account "Reserve for Accrued Depreciation," and this latter account is in turn charged for the loss realized when and as plant is retired from service. (pp. 12, 13.)


GROWTH AND COMPOSITION OF ASSETS
BELL SYSTEM
MILLIONS OF DOLLARS
2500
2000
1500
1000
500
0
TOTAL ASSETS
TOTAL FUNDED DEBT
MORTGAGE DEBT
STOCKS AND BONDS
CASH
RECEIVABLES
SUPPLIES, TOOLS ETC.
CONST. WORK IN PROG.
RIGHT OF WAY
STATION EQUIPMENT
UNDERGROUND CONDUIT
UNDERGROUND AND SUBMARINE CABLE
AERIAL CABLE
AERIAL WIRE
POLE LINES
CENTRAL OFFICE EQUIPMENT
LAND AND BUILDINGS
1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925
December 31st of each year

The result of this treatment is that the operating expense accounts, during the service life of the plant and equipment, are charged currently with the cost of property used up in rendering service, and the balance sheet reserve account to which the monthly depreciation accruals are credited reflects the fact that proper provision has been made against the ultimate retirement at cost of the property when it is taken out of service. This practice—the so-called "straight line" method of accounting for the expense of depreciation—conforms to the accounting rules for telephone companies prescribed by the Interstate Commerce Commission, effective January 1, 1913, and now in effect. The monies retained in the business by reason of these charges to expense for the accruing depreciation are used in necessary replacements, extensions and betterments to the property. (p. 15.)

The activities of the Bell Telephone Securities Company during 1923, as heretofore, were directed principally to the dissemination of information about Bell System securities and the giving of assistance to those especially who wished to purchase stock of the American Telephone and Telegraph Company. They were carried on mainly directly through co-operation with the Associated Companies of the Bell System in 35 states and the District of Columbia; but through correspondence and pamphlets they reached every state in the Union. The Securities Company distributed to financial institutions and to the public nearly 900,000 pamphlets, such as "Bell Telephone Securities" manual, "Some Financial Facts," "Others' Opinions," and "Stock of the American Telephone and Telegraph Company;" and it is estimated that there were over a million conferences about the stock of the American Company between telephone customers and employees of the Associated Companies. As a rule these conferences were with individuals of modest or small means, many of whom apparently are relatively unacquainted with investments, know little about how to make investments, and have limited banking connections. (p. 16.)

In the first part of 1923 and in the preceding year it became apparent that there were many small investors throughout the country who are not normally reached by established investment agencies who would become interested in Bell System securities if they could effect their purchases directly through the machinery of the System. As a result, a plan was devised to this end under which applications for the purchase of stock are received by employees of the Asso-

ciated Companies either for single cash payments or for monthly payments of $10 a share. The number of shares applied for in this way daily is communicated by an officer of each of the Associated Companies involved directly to the Securities Company in New York, which arranges for the purchase of the stock in the market through investment houses. (p. 16.)

A rate investigation by a regulatory commission not and should not be regarded as a lawsuit. Litigation should not be resorted to where it can reasonably be avoided. When it does become necessary, its more important aspect is not the determination of the instant case, but is the settlement of fundamental principles, which, when settled by the courts in one case, eliminate those points of dispute from future cases. In this aspect, the cases make for progress and economy and the success of commission regulation, results which we believe the commissions, the companies and the public equally desire. (pp. 18-19.)

Many of our annual reports have discussed fundamental legal and economic principles of rate regulation, pointing out the distinction between regulation and management, and that the former is the sole proper function of the commissions, while the latter belongs exclusively to the companies; calling attention to the difference between rates that are merely non-confiscatory and rates that are reasonable; and showing that the real interests of the companies and the public are not adverse but are the same in the long run.

The fact that our operating companies have found it necessary to appeal from the commissions to the courts in a small minority of cases should not be taken to indicate any change in our attitude or policy in these matters. Many questions involved in rate cases are difficult. Most of the differences between the commissions and the companies are found, upon analysis, to turn upon questions of law, and it is to the courts that both sides must look for a statement of what the law is. The final decisions of the courts declaring and clarifying the applicable principles of law are binding upon both sides, mark out the true course to be followed, and are constantly narrowing the disputed area. Litigation undertaken in this spirit, and decisions of the courts accepted in the same spirit, serve a good public purpose and in the end should simplify rate cases before commissions, put them on a fair business basis, and eliminate the enormous waste now incurred in elaborate

and protracted inventories and appraisals, valuations, etc. A rate investigation by a regulatory commission is not and should not be regarded as a lawsuit. Litigation should not be resorted to where it can reasonably be avoided. When it does become necessary, its more important aspect is not the determination of the instant case, but is the settlement of fundamental principles, which, when settled by the courts in one case, eliminate those points of dispute from future cases. In this aspect, the cases make for progress and economy and the success of commission regulation, results which we believe the commissions, the companies and the public equally desire.

Wireless

Point-to-Point Communication

In 1920 radio telephone communication was established from Catalina Island about 30 miles out in the Pacific Ocean to the mainland near Los Angeles, connecting at that point with the local and long-distance wires of the Bell System etxending throughout the United States.

As stated in the 1920 annual report, "a cable would carry the traffic from the island to the shore more economically and satisfactorily, but owing to conditions growing out of the war, it was impossible to have the cable manufactured as soon as required, so that the radio telephone was installed."

Our experience with radio communication, including the practical operation of the Catalina Island instaliation, still further emphasizes what has been pointed out in previous reports: that the practical field for radio telephony lies in general in those situations where it is impracticable to employ wire; and during the latter part of 1923 submarine cable was put into service between Catalina Island and the mainland, superseding the radio installation. This provided increased facilities at lower cost and released wave lengths which the Federal authorities had requested be released for broadcasting purposes.

Broadcasting

Radio telephone broadcasting has been receiving our careful study and consideration and we have actively participated in conferences with governmental and other agencies interested in this subject. The Western Electric Company has sold some

40 broadcasting stations which have been erected throughout the United States and we have licensed a number of other stations to operate under our patents. (pp. 18-19.)

Employees' Stock Plan

The Employees' Stock Plan of your Company, which was made effective on May 1, 1921, and which offers to all employees who have been in the service of the Bell System for six months or more a continuous opportunity to subscribe for new shares of capital stock of this Company on an installment basis, was continued in operation during the year without change. Subscriptions for more than 190,000 shares were received under the plan during 1923 at a price of $115 per share, and interest at the rate of 7 per cent per annum compounded quarterly was allowed on all installments paid thereon. On February 1, 1924, the price was increased to $118 per share. Nearly 100,000 employees of Bell System companies are now paying for approximately 400,000 shares of stock on the installment basis of $3 per share per month. Some of these employees are already stockholders of record and many others will become such when the subscriptions which they have made are paid in full. (p. 26.)

The Employees' Stock Plan was adopted primarily to stimulate systematic and continued savings by employees out of their weekly or monthly earnings; also to encourage them to become stockholders in the business in which they are employed and of which they have knowledge. (p. 26.)

In addition to the investment by Bell System employees in stock of this company there is a considerable investment by them in the preferred or common stocks of the associated companies. The aggregate investment by employees in stock of Bell System companies, including both shares fully paid and installment payments on shares partially paid, is upwards of $60,000,000. This record speaks well for the widespread tendency toward saving and thrift among the employees. (p. 26.)

Western Electric Company, Incorporated.

The functions of manufacturing, purchasing and supplying apparatus and materials for the Bell System have been for many years conducted through the Western Electric Company,

over 98 per cent of whose voting stock is owned by the American Telephone and Telegraph Company. The effect of this arrangement as compared with separate buying by the various Bell companies is to provide standardized equipment with protection on quality, prices, continuity of supply and patents. The Bell companies are not obligated to purchase their supplies through the Western Electric Company, but it is obviously to their advantage to do so since they thereby get the benefits of quantity production and combined buying. (pp. 26-27.)

The total sales billed by the Western Electric Company in 1923 were $255,000,000, as compared with $210,000,000 in the previous year. Of the 1923 sales, $186,000,000 were to the Bell companies, an increase of 17 per cent over 1922 and 6 per cent over the expected requirements for 1923 as estimated at the beginning of the year. (p. 27.)

The prices of telephone equipment, which were substantially reduced in 1921 and 1922, remained practically constant at the lower level during 1923. They now average about 50 per cent above the pre-war level, although the raw materials and shop wages entering into such equipment are about double the pre-war level. This relatively low price level of finished equipment as compared with material and labor costs has been possible by reason of greater quantity production and by continuous improvement in design and shop methods. (p. 27.)

In addition to its work for the Bell companies, the Western Electric Company conducts through separate departments a merchandising business in electrical supplies of all kinds and a foreign business. (p. 27.)

The very large construction programme of the Bell companies during 1923 and the consequent requirements for unprecedented quantities of telephone equipment and supplies, made the year an extremely active one in the Western Electric Company. Overtime and night work were resorted to in the Hawthorne factory, additional machinery was purchased, outside space was rented and other manufacturers were given orders for parts and finished apparatus. The total number of employees was increased during the year from 51,000 to 64,000. (p. 27.)

The prospect of immediate and continuing heavy requirements has made necessary the establishment of auxiliary factories in Chicago, Jersey City and Newark, pending the

completion of the new factories at Kearny, N. J., which are now in process of construction. It is expected that the lead-covered cable factory there will be in operation by the end of 1924 and the telephone apparatus factory by the end of 1925. (p. 28.)

The earnings of the American Telephone and Telegraph Company include, in addition to the earnings of the long-distance lines, dividends on the Company's investment in stocks of its Associated Companies, interest on bonds and notes of and advances to Associated Companies, interest and dividends from investments in other companies, earnings under its contracts with Associated Companies for the furnishing of instruments and general services, and miscellaneous other revenues. (p. 35.)

Of the 281,149 stockholders of record, about one-sixth are employees of the Bell System. In addition, nearly 100,000 employees of Bell System companies and their subsidiaries are now paying for stock on the installment basis under the Employees' Stock Plan dated May 1, 1921. Included in this number are some who are already stockholders of record; the remainder will become such upon completion of the installment payments on shares for which they have subscribed. (p. 39.)

Of all American corporations your company is first in the number of holders of its stock, and none has its shares more widely distributed. These stockholders, with the exception of the few holders in foreign countries, constitute a representative cross-section of American citizenship. They are men and women from all walks of life—users of the telephone who with their savings and resources have purchased an interest in the business. In the truest sense the company is owned by those it serves. (pp. 39-40.)

The average number of shares held per stockholder in 1900 was 76; today it is 26, or an average holding of $2,600 at par. (p. 40.)

The funds supplied by these 281,149 stockholders as well as those supplied by investors who have acquired other securities of Bell System companies, have been used for the building and extension of telephone plants in every section of the United States. (p. 40.)

GROWTH OF THE BELL SYSTEM IN NUMBER OF TELEPHONES. AMERICAN TELEPHONE AND TELEGRAPH COMPANY BALANCE SHEET, DECEMBER 31, 1922, AND 1923.

ASSETS.

	December 31, 1922	December 31, 1923
Stocks of Associated Companies	$ 662,529,358.73	$ 756,463,932.11
Bonds and Notes of and Net Advances to Associated Companies	115,671,082.98	178,147,274.02
Stocks, Bonds and Notes of Advances to Other Companies	105,427,223.85	102,211,723.47
Long Lines Plant and Equipment	108,575,168.05	125,671,228.42
Telephones	29,666,203.92	33,275,285.85
Real Estate	11,665,548.99	12,096,745.41
Office Furniture and Fixtures	703,935,60	956,088.11
Accounts Receivable	9,831,006.15	10,443,626.03
Temporary Cash Investments	93,162,766.73	62,218,588.55
Cash	26,517,547.38	25,217,740.10
	$1,163,931,842.38	$1,306,702,232.07

C. A. HEISS, *Comptroller.*

(p. 42.)

On December 31, 1923, there was one Bell Telephone Station to each 7 of the total population of the United States. (Back Cover, 1923.)

1924

THE BELL SYSTEM.

Since the invention of the telephone, it has been the purpose of your company and its predecessor organizations to create and maintain telephone service in any part of the United States for communication with any other part of the United States. The Bell System embraces the agencies through which that is accomplished. These are:

1st. Your company, which maintains the headquarters organization of the Bell System. By contracts it is charged with the performance of certain services which have grown in effect into the development of a single policy and program for the associated companies, and which include furnishing and maintaining telephone instruments, providing interconnection between regional operating companies by long-distance lines, temporary financing and aid in permanent financing, development of the art, patent protection, standardization of methods and materials, and other services which can be more efficiently carried on by one for all than by each individually. It owns and operates the National System of Long-Distance Lines.

2nd. The associated telephone companies, in which your company is a stockholder, owning directly or indirectly all of the common stock of 13 companies, a majority in 10 companies, and a minority in two companies.

These associated companies operate the local service and the local telephone lines in communities served by 11,242,318 stations.

3rd. The connecting companies, which are locally owned and operate 4,664,232 stations.

4th. The Western Electric Company, Incorporated, the manufacturing and supply organization of the Bell System; in this corporation your company is a stockholder to the extent of over 98 per cent of the common stock.

5th. The Bell Telephone Securities Company, organized to facilitate investment in the stock and securities of the Bell System. Of this corporation your company owns all the stock.

The Bell System maintains connections with The Bell Telephone Company of Canada, in which your company is a

minority stockholder, and with the Island of Cuba through cables of a company of which your company owns 50 per cent of the stock. (cover page.)

CHRONOLOGY.

1924—Pictures sent by telephone circuit from Cleveland to New York and from New York to Chicago.
Nation-wide mobilization of communication by wire and wireless for the United States Army on Defense Test Day.

1925—15,906,550 telephone stations in Bell System. (p. 1.)

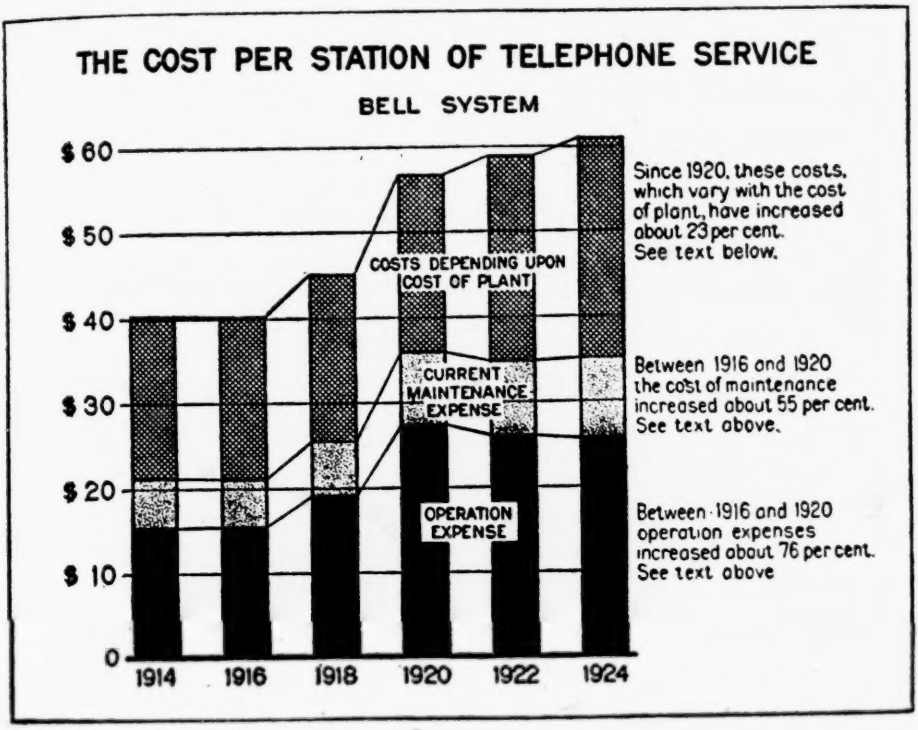
During 1924 the ratio of total capital charges, both interest and dividends, to the book cost of plant and other assets—the property of several hundred thousand investors in the business of the company—was 6.25 per cent. The difference between the earnings of 7.7 per cent on the Company's assets and 6.25 per cent thereon paid to those who own its securities a margin of 1.45 per cent, is the amount of net earnings carried to surplus and remains invested in the business." (p. 5.)

Treating this Company and its Associated Companies as a whole, the percentage of net earnings (*i. e.*, earnings available for interest, dividends and surplus) to book cost of property in 1924 was almost exactly the same as in 1914. Your attention is particularly called to this fact so that the rate adjustments of our Associated Companies as a whole may be understood in their proper light, namely, as adjustments of rates to the present value of the dollar rather than increases in the percentage of net earnings on property over what has been customary in the past. The only exceptions are in those few places where rates even before the war were not adequate. (p. 5.)

The capitalization of our Associated Companies is so conservative that a fair return upon the value of their property always affords earnings in excess of dividend requirements. This fact also justifies our confidence that the few cases where rate adjustments are now pending will be satisfactorily concluded in due course. (p. 5)

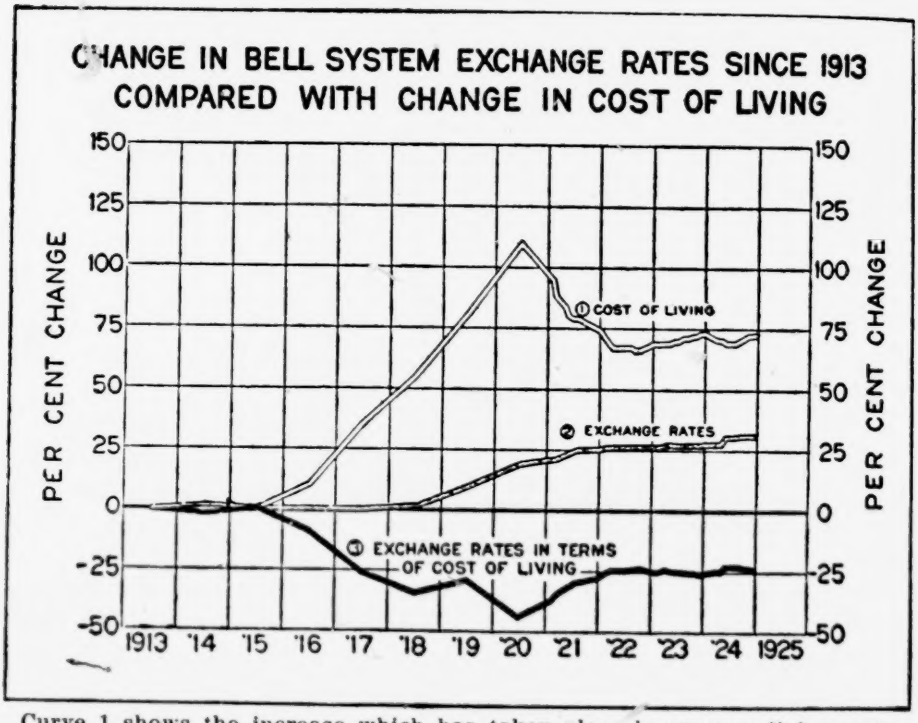
The problem of readjustment to the changed conditions accompanying and following the war has been continuous. In this as in other kinds of business and in domestic life, there

was a rapid increase in wages and in cost of materials used in operation and maintenance. Between 1916 and 1920 operation expense per station increased about 76 per cent and the cost of maintenance about 55 per cent. (p. 6.)



Since the war there has been a very large increase in the demand for telephone service and therefore in the construction of plant to meet that demand. All of that plant has been built at a very much higher cost per station than before the war, increasing the annual cost of telephone service by higher capital charges. That part of the annual cost per station which varies with cost of plant has increased about 23 per cent since 1920, notwithstanding the noteworthy fact that the dividend and interest charges of the Bell System in 1914 amounted to 4.96 per cent upon the book value of its property, and in 1924 amounted to only 4.87 per cent. Business permanent investment has not felt that class of increase in annual cost. In the telephone service, because it has grown faster than others since the war, it has been more apparent. The public, in demanding more and more telephone service should understand that it is being rendered by the Company

not only at the largely increased cost of day-by-day operation, but with the use of plant costing roughly twice as much per station as the cost before the war. These increased costs are met only in part by increased charges for services. To a very appreciable extent they have been met by improved appliances and methods and by the hearty co-operation of the whole organization in an effort to accomplish the greatest economy and efficiency. (pp. 6-7.)



Curve 1 shows the increase which has taken place in average living costs since 1913.

Curve 2 shows the increase in Bell System average exchange rates since 1913 in terms of money.

Curve 3 shows the decrease in Bell System average exchange rates since 1913 in terms of cost of living.

The charges for telephone service have, on the average, advanced less during the past ten years than wages or the prices of materials or the cost of living. This is equivalent to saying that, measured in terms of wages or material prices or cost of living, the average charge for telephone service has been reduced. The extent of this reduction is indicated in the chart on the preceding page showing the change which has taken place since 1913 in Bell System exchange telephone

rates in terms of cost of living, the latter being used as the best index of the changes in the purchasing power of the consumer's dollars. (p. 8.)

The relative reduction in telephone rates is, however, perhaps made clearest by the statement, based on published statistics covering a considerable number of trades and occupations, that in 1914 it took an average of 5¼ hours of labor upon the part of a wage earner in these occupations to earn the average cost of a month's telephone service, while in 1924 it took only 3¼ hours. (p. 8.)

The principles of rate regulation applicable to telephone service have been greatly clarified in recent years and some of them have been well established. It is reasonable to expect that this should simplify the work of both the commissions and the companies in such rate readjustments as changes in conditions may make necessary or desirable. (p. 8.)

The value of the contract relation of the Company with the Associated Companies is better understood. In order that there may be a nation-wide telephone service extending into all of the 48 states with their varying laws, there must be and is, an association of regional corporations (the Bell System). In that association your Company performs the functions which bind the regional companies together. For that purpose it holds stock in them. It inter-connects their properties with lines of communication (the long-distance lines) and it maintains a headquarters organization which directs or carries on much work which can be more efficiently carried on by one for all than by each individually. (pp. 8-9.)

It was for that purpose that your Company was instrumental in the organization of the Western Electric Company and its development into the supply organization of the Bell System. For that purpose departments are maintained by your Company to promote the art of Telephony by research and experiment, to study operating methods and accounts, to advise concerning the law applying to telephone operation. Patents have been acquired by purchase or development in order that the progress in telephony by the Associated Companies might be free and uninterrupted. Recognizing that public opinion is the court of last resort, your Company has maintained a department whose work is to prepare and put forth information as to the purposes and problems and achievements of the Bell System, in order that they may be given proper weight by the public. In order to provide a flow of funds

for the extension of plant to meet the demand of the public upon the Associated Companies, we carry out a well balanced financial program and have systematically broadened the market for stock and other securities by informing and interesting investors. In short, we have intended to neglect nothing which could contribute to the giving of economical, adequate and efficient service by the Associated Companies. For these services we are paid by the Associated Companies a percentage of their revenue. Every expenditure we make is directed toward and bound up in the performance of these services. (p. 9.)

It is the purpose of the companies in the Bell System that the earnings of telephone service shall be fair—no more and no less. It is for the interest of the public as well as investors, that they shall be constant and that unnecessary expense shall be eliminated. (p. 9.)

During the year the organization has been greatly strengthened at headquarters and in the field. As much attention and forethought is being directed toward the development of the form and the personnel of the organization as to the physical plant and methods of operating it, in order that, as the requirements of service to the public grow, your company may meet them adequately and efficiently and with satisfaction to the stockholders. There is a splendid spirit of co-operation and a pride in the accomplishments of the Bell System and in their connection with it, pervading the whole group of over 275,000 workers devoted to this service, which must be a source of satisfaction and confidence to the stockholders as it is to their directors. The service is well up to previous standards and in some respects is better. (pp. 10-11.)

The attitude of the associated companies has been one of reluctance to go from the commissions to the courts in this class of cases and they have done so only when issues as to important principles of law were involved, or fundamental questions of fact peculiar to our business, or when the rates prescribed by the commissions' orders were so low that the companies could not live under them and discharge their full duty to the public and the investors. (p. 12.)

As a result of our study a new organization to be known as Bell Telephone Laboratories, Incorporated, has been formed. This new organization, which is owned jointly by the American Telephone and Telegraph Company and the Western Electric Company, has taken over all of the research

and development functions hitherto performed for the Bell System in the Engineering Department of the Western Electric Company. The President of the Laboratories Company is the Vice President of the American Telephone and Telegraph Company in charge of its Development and Research Department, and it is believed that the new arrangement will make for a more efficient and more economical carrying on of the fundamental work designed to improve and advance the communication art which has in the past contributed so markedly to the progress of telephony and telegraphy as exemplified in the Bell System. (pp. 18-19.)

WESTERN ELECTRIC COMPANY, INCORPORATED

The Western Electric Company is the department of the Bell Telephone System which is charged with the responsibility for manufacturing, purchasing and supplying apparatus and materials. This arrangement had its inception as far back as 1882, when a control of the Western Electric Company was purchased and a contract was made relating to inventions, patents and the manufacture of telephones. (p. 19.)

The original arrangement has developed by natural stages into relationships of intimate cooperation in the design, production and distribution of the telephone equipment and supplies of many kinds used in the Bell System. The result of this cooperation has been a continued improvement in the effective quality of telephone plant and, through quantity manufacture and combined buying, the lowest possible costs.

Over 98 per cent of the voting stock of the Western Electric Company, Inc., is now owned by the American Telephone and Telegraph Company. (p. 19.)

This plan has proved of substantial benefit to Bell System employees as a means for regular and systematic savings and investment in a business with which they are familiar. The results for the three and one-half years during which the plan has been in effect fully justify a plan of this character, with such modifications from time to time as may be found desirable. (pp. 22-23.)

In addition to the investment by Bell System employees in stock of this company, there is a considerable investment by them in the securities, largely preferred stocks, of the as-

sociated companies. The aggregate investment by employees in Bell System companies, including installment payments on shares of stock partially paid, is in excess of $75,000,000. (p. 23.)

The plan which was inaugurated in 1923 of informing investors through the employees of the Bell System and making it possible through the agencies of the Bell System to buy stock of the American Company by installments or by payment in full, was continued during 1924 and extended to cover the territories of additional Associated Companies. (p. 23.)

One of the greatest advantages of this plan has been the reaction on the employees themselves. It has stimulated their own interest in the accomplishments of the System and led them to inform themselves as to the general plans and policies. (p. 23.)

As a result of the activities of the securities company during the three years in which it has been operating, over 100,000 persons, mainly small investors, have purchased more than 800,000 shares of stock of the American Telephone and Telegraph Company at the market price, involving an investment of about $100,000,000. (pp. 23-24.)

In addition to the work of securing a wider distribution of stock of the American Company among small investors, much was accomplished by the officers of the securities company in acquainting the public as well as the financial institutions of the country with the financial structure of the Bell System and the desirability of its securities as investments. As a result, several of the more important insurance companies have become large holders of the securities of the system, and others have increased their holdings. Bell Telephone Securities as investments were discussed before state banking and savings bank associations. (p. 24.)

By means of advertising in financial publications, the merits of stock of the American Company have been kept before the investing public. The 'Bell Telephone Securities' manual has met with favorable comment both from individuals and institutions. The distribution of other pamphlets to the general public by mail and through the employees of the associated companies has continued. (p. 24.)

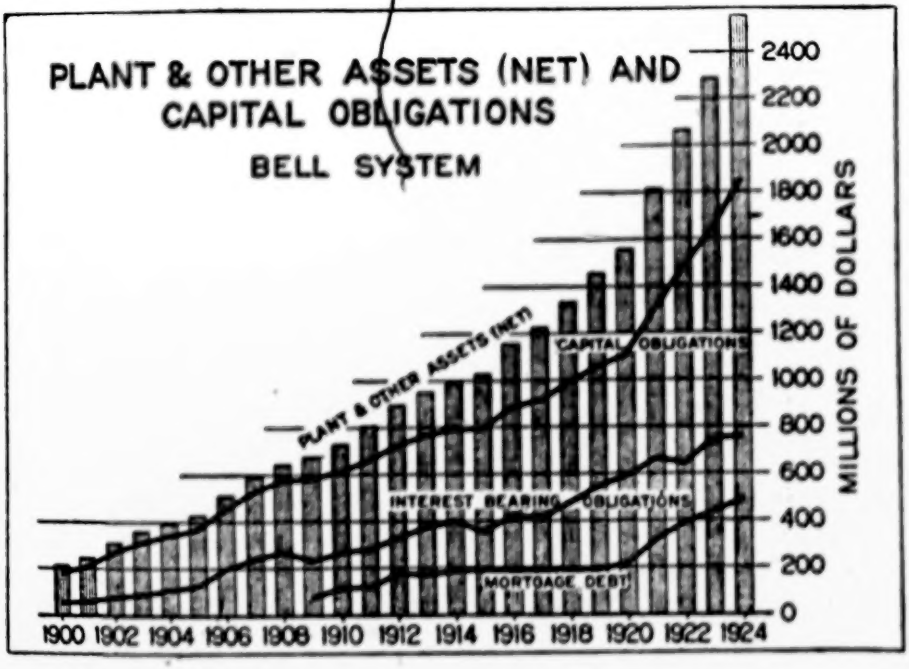
The activities of the securities company in spreading information about Bell System securities and particularly

about the stock of the American Company and the aid which it offers the public, both directly and through the associated companies, in purchasing stock of the American Company, constitute a real service to the whole Bell System. The work of the securities company in promoting the habit of thrift and the knowledge of the principles of sound investment is likewise of benefit to the nation. (p. 24.)

Bell System Earnings and Expenses

The following statement consolidates the accounts of the American Telephone and Telegraph Company and its Associated Companies, and thus represents the business of the Bell Sytem as a whole in its relation to the public. All intercompany duplications have been excluded. Interest and dividends received from the investment of these companies in the securities of connecting companies and of such companies as the Bell Telephone Company of Canada and the Western Electric Company, Incorporated, are included in the item of non-operating revenues. (p. 26.)

The following chart shows the growth of the investment in the Bell System since 1900, compared with the increase since that date in capital obligations of the System outstanding in the hands of the public: (p. 31.)



The relations between the assets and the outstanding securities, as shown on this chart, reflect the conservative policy under which the growth of the business has been financed. On December 31, 1924, the total mortgage debt of the System was less than $481,000,000 and the total funded debt was about $753,000,000, while assets, after deducting current liabilities, were in excess of $2,549,000,000. Stated in terms of percentage relationship, mortgage debt was less than 19 per cent and total funded debt was less than 30 per cent of such assets. (p. 31.)

Earnings of the American Telephone and Telegraph Company include the earnings of the long-distance lines, dividends on the Company's investment in stocks of its Associated Companies, interest on bonds and notes of and advances to Associated Companies, interest and dividends from investments in other companies, earnings under its contracts with Associated Companies for the furnishing of instruments and general services, and miscellaneous other revenues. (p. 32.)

Interest and dividend deductions represent the charges on the securities issued by this Company, largely to finance the Associated Companies and the long-distance lines. These interest and dividend charges include capital charges incurred by the Company arising out of its contract relations with its Associated Companies. (p. 32.)

The assets of your Company are carried on its books at a figure which is, without question, much less than their real value. It is a conservative statement that the dividend of 9 per cent does not represent a return of more than 5 per cent upon the value of the company's property less the amount of its debt. (p. 33.)

During 1924 the ratio of total capital charges, both interest and dividends, to the book cost of plant and other assets—the property of the several hundred thousand investors in the business of the company—was 6.25 per cent. The difference between the earnings of 7.7 per cent on the Company's assets and 6.25 per cent thereof paid to those who own its securities, a margin of 1.45 per cent, is the amount of net earnings carried to surplus and remains invested in the business. (p. 36.)

Of the 345,466 stockholders of record over one-sixth are employees of the Bell System, owning an average of 9 shares each. In addition, about 150,000 employees of Bell System companies and their subsidiaries are now paying for stock on the installment basis under the Employees' Stock Plan

dated May 1, 1921. Included in this number are some who are already stockholders of record; the remainder will become such upon completion of the installment payments on shares for which they have subscribed. (p. 38.)

Your company has the largest number of stockholders of any corporation in the world and none has its shares more widely distributed. No one class predominates among the stockholders but the list comprises men and women of every station in life, largely users of the telephone who by thrift and saving have purchased an interest in the business. The distribution of the stock widens from year to year and the company becomes more fully the property of those it serves—a public-owned institution. (p. 38.)

The average number of shares held per stockholder in 1900 was 76; today it is 26, or an average holding of $2,600 at par. (p. 38.)

The funds supplied by these 345,466 stockholders as well as those supplied by investors who have acquired other securities of Bell System companies, have been used for the building and extension of telephone plants in every section of the United States. (p. 39.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
BALANCE SHEET, DECEMBER 31, 1924

ASSETS

	Dec. 31, 1924
Stocks of Associated Companies	$ 896,499,180.98
Bonds and Notes of, and Net Advances to, Associated Companies	211,837,870.94
Stocks, Bonds, and Notes of, and Advances to, Other Companies	95,334,922.09
Long Lines Plant and Equipment	140,557,941.86
Telephones	37,122,591.66
Real Estate	12,124,464.88
Office Furniture and Fixtures	1,094,478.14
Accounts Receivable	13,295,581.25
Temporary Cash Investments	46,748,297.25
Cash	23,531,892.27
	$1,478,147,221.32

C. A. HEISS, Comptroller.

(p. 41)

1925

The Bell System is in a sense publicly owned. Its owners are, for the most part, the stockholders of the American Telephone and Telegraph Company. These numbered over 362,000 at the end of the year. They are widely distributed throughout this country, with a relatively small number in Canada and other parts of the world; and no stockholders owns as much as one per cent of the stock. In addition, there were over 175,000 holders of the common and preferred stocks of its associated telephone companies; so that, after making allowance for duplications, there are now about 500,000 separate owners of the Bell System. (p. 6.)

The financial facts given above for the Bell System combine the figures for the American Telephone and Telegraph Company and its associated telephone companies. These facts of the business are presented as a whole in its relation to the public, with all intercorporate transactions eliminated. In other words, the figures are shown without duplication, as though the Bell System were one company. (p. 6.)

In the early days of the telephone business it seemed essential that telephone instruments be owned and maintained by a central organization. (p. 6.)

From its very nature, our business—the aim of which is to make intercommunication by telephone possible throughout the nation—requires an organization nation-wide in scope, organized and operating under state laws and state regulation, and federal laws and federal regulation. This, of course, necessitates an enterprise made up of corporations and subsidiary corporations. In short, it requires the sort of organization that is provided by the Bell System. Notwitstanding its many corporations and various intercorporate relations, it is quite simple in principle and it is not arbitrary nor has it merely happened. It is not only the best, but probably the only form of organization that could successfully operate a nation-wide system of intercommunication under American laws and traditions. (pp. 6-7.)

The American Telephone and Telegraph Company is the parent company of the Bell System. It owns, directly or indirectly, in most cases all, in some cases the majority, and in two cases the minority, of the voting stock of twenty-five associated telephone companies. These are the operating Bell

telephone companies which, with their connections, cover the entire United States. These companies have been organized under state laws and operate under state and federal regulation, and they are responsible for handling the telephone business within their respective territories. (p. 7.)

If any one wishes to talk from San Francisco to New York, for instance, it is obviously necessary that he talk through the territory of several of these operating companies. This necessitates his talk being handled by one organization which can coordinate both the plant and the operating. The American Telephone and Telegraph Company therefore, owns directly and constructs, maintains and operates what we term the long-distance lines. These lines interconnect the operating company territories. (p. 7.)

In the telephone business the apparatus used is of a highly intricate, technical and complicated character. Therefore, to make possible satisfactory communication between individuals in the same town or city, or between individuals located in places either near or far apart, it is necessary that the apparatus at both ends and throughout the length of the lines be of certain standards and of the highest quality. In order to insure such standards and quality of apparatus, and also to make sure of apparatus at reasonable prices, the American Telephone and Telegraph Company owns practically all of the capital stock of the Western Electric Company, Inc., which manufactures telephone apparatus and equipment for the Bell System. (pp. 7-8.)

The Bell System companies do not need, nor do they seek to earn, more than a reasonable return on their properties—in 1925 the Bell System as a whole earned 6½ per cent on investment in plant and other assets, and substantially less on the real value of its property. It always has been, and still is the policy of the companies comprising the Bell System, after earning a reasonable return, to have all reductions in costs benefit the telephone subscriber. (p. 8.)

Finally, the American Telephone and Telegraph Company maintains at headquarters, including the forces of the Bell Telephone Laboratories, over 5,000 people whose task it is to invent, to develop and improve telephone service and make it more economical. It is largely because of this fact, namely, that such a large force of people is engaged in scientific research and in the development of better operating methods, better accounting methods and all the other things

that go to make up improved and more economical service, that telephone service today in this country costs relatively so little, and is at such a high standard, and that we can confidently look forward to continued progress. (p. 8.)

The Bell System is a large modern business enterprise. Notwithstanding its size, however, and notwithstanding the fact that it is steadily growing larger, it is probable that although more complicated it is less hazardous to manage than ever before. It is possible now, to a greater extent than ever, to plan deliberately and to budget operations for years in advance. Judgment and decision can be based more and more on facts. (p. 8.)

The Bell System companies do not need, nor do they seek to earn, more than a reasonable return on their properties—in 1925 the Bell System as a whole earned 6½ per cent on investment in plant and other assets, and substantially less on the real value of its property. It always has been, and still is the policy of the companies comprising the Bell System, after earning a reasonable return, to have all possible reductions in costs benefit the telephone subscriber. (p. 13.)

In the Bell System the manufacture of telephone equipment and cables, and the purchase and distribution of supplies are conducted by the Western Electric Company, Inc. (p. 14.)

In the telephone business, the foundation of good public relations is satisfactory service at lowest possible rates. Satisfactory service, of course, includes not only the setting up of telephone connections, but the removal of troubles and their prevention as far as practicable; the prompt installation of new stations and the moving of telephones for subscribers; the prompt, courteous and effective handling of inquiries of all kinds; and the many other factors which comprise the contacts with our customers. (p. 14.)

It is our aim at all times to give the best possible telephone service at the lowest possible cost to the user. It is our further purpose to conduct the affairs of the Bell System in accordance with American ideals and traditions, so that it may continue to merit the confidence of the people of the country. There can be nothing inconsistent between our aims and purposes, and the public good. The growing recognition of the fact that the interests of the telephone user and the telephone company are identical is undoubtedly an important factor in our generally satisfactory relations with the public, including regulatory bodies. (p. 14.)

RELATIONS WITH THE PUBLIC

The telephone has increasingly become a necessity. We are responsible for its operation and development on a nation-wide basis. We have always welcomed regulation by public authorities and we recognize that, not only our stockholders, but the public generally, are entitled to know how we are carrying on our stewardship. Criticism may be a most useful aid to management, and we welcome criticism where it is sincere. While occasional criticisms and attacks which would appear to arise solely from insincere and selfish motives add somewhat to the expense and difficulties of management, on the whole our relations with the public and public authorities have been most gratifying. (p. 14.)

The principal manufacturing plant is at Hawthorne, Illinois, where about 25,000 people are employed. A secondary plant at Kearny, New Jersey, is nearly completed. Part of it, devoted to the manufacture of lead-covered cable, has been in successful operation for several months; and the part designed for making telephone apparatus will probably begin operations this year. (pp. 14-15.)

The Western Electric Company for many years conducted a foreign business, chiefly through manufacturing subsidiaries, in various countries. During the year all of the interests in foreign companies, except in Canada, were sold at a substantial profit. As a result, the territorial scope of that company now corresponds to that of the Bell System; and the Bell System has no direct or indirect financial interest in any foreign enterprise except in Canada and in the Key West-Havana cable. (p. 15.)

The Western Electric Company has also carried on for many years in its own name a domestic merchandising business in electrical supplies of all kinds. At the end of the year this business was turned over to a separate subsidiary corporation organized for the purpose, but entirely owned by the Western Electric Company. (p. 15.)

The underlying purpose of these arrangements is that all of the direct activities of the Western Electric Company may be devoted to the large and increasing requirements of the Bell System. (p. 15.)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
BALANCE SHEET, DECEMBER 31, 1925

ASSETS

Stocks of Associated Companies.....	$1,027,448,629.47
Investment in stocks of Associated Telephone Companies. Increase during year $130,949,448.49.	
Bonds and Notes of, and Net Advances to, Associated Companies	234,460,329.28
Temporary financing of Associated Companies for the extension of their telephone properties. Includes also $1,788,807.54, investment in bonds of these companies. Increase during year $22,622,458.34.	
Stocks, Bonds and Notes of, and Advances to, Other Companies.....	102,005,012.67
Investments in affiliated and subsidiary companies such as the Western Electric Company, Inc., The Bell Telephone Company of Canada, 195 and 205 Broadway Corporations and Bell Telephone Securities Company. Increase during year $6,670,090.58.	
Long Lines Plant and Equipment.....	154,431,111.61
Cost of long-distance plant and equipment for providing interconnection between and through territories of Associated Companies. Increase during year $13,873,169.75.	
Telephones	41,229,476.47
Cost of telephones furnished to, and maintained for, the Associated Companies. Increase during year $4,106,884.81.	

Real Estate	2,761.72
Cost of real estate owned, exclusive of that included in Long Lines Plant and Equipment. During 1925 property in New York City used as office headquarters was sold to the 205 Broadway Corporation—a wholly-owned subsidiary—and a building in Indianapolis was sold to the Indiana Bell Telephone Company, resulting in a decrease in this account of $12,121,703.16.	
Office Furniture and Fixtures.....	1,040,549.81
Cost of office equipment exclusive of that included in Long Lines Plant and Equipment.	
Accounts Receivable	12,462,581.71
Current receivables, such as dividends, interests, tolls and other items.	
Temporary Cash Investments.....	45,618,877.71
Funds temporarily invested in municipal, state and U. S. Government short-term obligations in anticipation of financial requirements of Associated Companies for the extension of their properties.	
Cash	26,866,043.46
Cash and deposits in banks available for current requirements.	
Total Assets	$1,645,565,373.91

C. A. HEISS, Comptroller.

(p. 18)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
BALANCE SHEET, DECEMBER 31, 1925, CONTINUED

LIABILITIES

Capital Stock ..... Par value of capital stock outstanding. Increase during year $33,119,400. See page 23.	$ 921,597,500.00
Capital Stock Installments..... Installments paid by employees on stock subscribed for under the Employees' Stock Plan. See page 23.	27,572,850.27
Funded Debt ..... Face value of debt obligations in the form of bonds and debentures. Increase during year $116,070,600. See page 23.	387,692,600.00
Dividend Payable January 15th..... Dividend declared for the last quarter of 1925.	20,735,932.50
Accounts Payable ..... Current bills for supplies and services, and obligations payable on demand.	19,426,764.07
Interest and Taxes Accrued, Not Due..... Interest and taxes applicable to the year 1925, not due and payable until a later date.	11,128,828.34
Reserve for Employees' Benefit Fund..... Provision for accident and sickness disability benefits, pensions and death benefits under the Employees' Benefit Plan.	7,000,000.00
Reserves for Depreciation and Contingencies ..... Provision for the ultimate retirement of plant and equipment used up in furnishing telephone service, and provision for contingencies. Increase during year $9,285,879.49.	91,261,334.41

Surplus (Including Capital Stock Premiums)	159,149,564.32
Total accumulated surplus, including $43,570,410.64 received in excess of par value for capital stock. Increase during year $11,905,228.87, after charging off debt discount and expense incurred by the issue of the 5 per cent Debentures, 1960.	
Total Liabilities	$1,645,565,373.91

C. H. HEISS, Comptroller.

(p. 19)

1926

The ideal and aim today of the American Telephone and Telegraph Company and its Associated Companies is a telephone service for the nation, free, so far as humanly possible, from imperfections, errors or delays, and enabling at all times any one anywhere to pick up a telephone and talk to any one else anywhere else, clearly, quickly and at a reasonable cost. The year 1926 brought the service of the Bell Telephone System measureably nearer that goal. (p. 6.)

Organization.

The organization of the Bell Telephone System has grown out of American conditions, and parallels in many respects that of the nation. (p. 10.)

Regional operating companies, covering one or more states, are responsible for telephone service within their territories. In this way community needs and requirements are best met and, so far as practicable, responsibility for operation localized. (p. 10.)

These territorial operating companies are tied together for nation-wide service by long-distance lines constructed and owned by the American Telephone and Telegraph Company.

The unified operation and coordination essential for nation-wide telephone service are provided by the financial and service relationship of the American Telephone and Telegraph Company to each of these regional operating companies. (p. 10.)

The American Telephone and Telegraph Company's financial interest in the Western Electric Company, Inc., ensures an adequate supply of the highest grade of the necessary intricate apparatus at reasonable prices, as well as full consideration of service needs in the manufacture of that apparatus. (p. 10.)

Progress in the extent, quality and economy of telephone service is the especial duty of the general staff of the American Telephone and Telegraph Company, comprising scientists and men skilled in all phases of telephone operation and management. This staff is available at all times for advice and assistance to the operating companies, and is engaged constantly in devising new methods of operation, and in the

invention, development and testing out of new types of equipment. (p. 10.)

This form of organization is adapted to care for the constant increase in size of the System and to permit of effective management; to respond to the local requirements of the different sections of the country; to ensure uniform methods of operation required in handling inter-regional business; to secure all possible economies in the cost of equipment, in maintenance and in methods of operation; and to continue to promote improved service through new developments in the art of telephony. The organization, is, in a sense, unique and distinctively American in character. (pp. 10-11.)

The ownership of the Bell Telephone System is widely distributed. Every section of the country and probably every occupation of its citizens are represented among the hundreds of thousands of stockholders of the American Telephone and Telegraph Company. For over forty years no individual or small group has owned a controlling interest in or even a relatively substantial part of the stock of the American Telephone and Telegraph Company (or its predecessor The American Bell Telephone Company). That an organization with such large and widespread ownership and with a management actuated by a sense of trusteeship can progress along right lines, and has made progress, is evidenced by the record. It is in keeping with our democratic ideals and institutions and in a very real sense is a reflex and an expression of them. Widespread ownership permits, and in fact obliges, management to make its decisions with a long look ahead rather than for the possible temporary advantage of the moment. Obviously, in the case of the American Telephone and Telegraph Company, sound business dictates that the continuing aim shall be to improve service in its broadest sense and to furnish that service at the lowest possible cost. (p. 11.)

The Bell Telephone System net earnings in 1926 were $204,870,000, an increase of $22,426,000 or 12 per cent over the previous year. This compares with an increase in the investment of 11 per cent. These net earnings were at the rate of 6.6 per cent on the amount invested in plant and other assets. (pp. 11-12.)

The American Telephone and Telegraph Company was able during the year to make a reduction in its charge to its Associated Companies under its contracts for service, in-

cluding the furnishing of telephones. The charge was reduced from 4½ per cent to 4 per cent of the gross revenue of those companies, effective from January 1, 1926. The purpose of these contracts is not to make money for the American Telephone and Telegraph Company, but to further the development of the telephone art and to enable the growth and expansion of telephone service on a nation-wide basis. While the cost of furnishing the services to any one company, from the nature of the services rendered, cannot be determined, the total cost of furnishing services for all of the companies under the contracts can be approximated. The revenue of $29,850,303 received under the contracts during 1926 only slightly more than offset the estimated cost of over $29,250,000. (p. 13.)

1927

The American Telephone and Telegraph Company at the end of the year sold to its Associated Companies the telephone instruments which have previously been furnished and maintained by it for those companies, and at the same time reduced the charge to its Associated Companies under its contract for services from 4 per cent to 2 per cent of the gross telephone revenues of those companies. (pp. 5-6.)

Effective December 1, 1927, a further reduction was made in long-distance rates, amounting to a saving to the public of approximately $1,500,000 a year. Increased use of long-distance is due for the most part to improved service. This reduction in rates will, however, tend further to increase its use. (p. 6.)

The Western Electric Company, Inc., which manufactures the telephone equipment for the Bell System, practically all of the capital stock of which is owned by the American Telephone and Telegraph Company, made substantial reductions in prices during the year. (p. 6.)

A special cash dividend of $47,938,865, representing profits accumulated by the Western Electric Company, Inc., over a period of years in its foreign business which was sold in 1925, and in other fields of activity apart from its business with the Bell System was received and has been added to the surplus of the American Telephone and Telegraph Company. Its ultimate investment in the telephone plant will still further aid in keeping down the cost of telephone service. (p. 6.)

STATEMENT OF POLICY.

The very nature of the telephone business necessitates a single interconnected system. Such a system is provided by the American Telephone and Telegraph Company and its Associated and Connecting Companies. (p. 6.)

The American Telephone and Telegraph Company accepts its responsibility for a nation-wide telephone service as a public trust. Its duty is to provide the American public with adequate, dependable and satisfactory telephone service at a reasonable cost. To attain this end, it is the policy of the Company to pay only reasonable regular dividends and, for part of the new capital needed, to offer from

time to time new stock to its stockholders on favorable terms, for it believes this method of financing will provide the money needed for the business cheaply and with more certainty in good times and bad than any other. (p. 6.)

The safety of principal and regular dividends have been the compelling motives that have led to the widespread ownership of the stock of the Company. At the end of the year there were 423,580 stockholders, an increase during the year of 24,459. No one of these stockholders owns as much as one per cent of the capital stock. This nation-wide ownership of the American Telephone and Telegraph Company means ownership of the Bell System, for, taking the associated operating telephone companies as a group, the American Telephone and Telegraph Company owns 93 per cent of their common stock, and in the case of the Western Electric Company, Inc., it owns 98⅓ per cent of the stock. Dividends paid to the American Telephone and Telegraph Company by these companies, together with profits earned from its long-distance lines, are used for the payment of the regular dividends to the American Telephone and Telegraph Company stockholders and the protection of their investment. There is, in effect, one profit paid by the System and that profit is not and should not be large. The aim of the management—and it is the only aim that will protect in the long run the safety of the investment of the hundreds of thousands of stockholders—is to continue to furnish the best possible telephone service at the least cost to the public. Extra or special dividends are entirely inconsistent with this aim and would be unsound. Earnings must, of course, be sufficient to permit the best possible telephone service at all times and to provide a reasonable payment to stockholders with an adequate margin to insure financial safety. Earnings in excess of these requirements will either be spent for the enlargement and improvement of the service furnished, or the rates charged for the service reduced. This is fundamental in the policy of the management. (pp. 6-7.)

* * * It is obvious that each section of the Bell System should earn enough in good times and bad to be able to give satisfactory telephone service and provide telephone facilities to meet the growth of the country. Beyond that the Bell System has no incentive for profit. Up to that point it must earn in order to furnish telephone service on an American basis to the American people. (p. 8.)

A considerable percentage of the toll calls originate or terminate on the 4,600,000 telephones operated by the 8,900 connecting companies which are not owned by the American Telephone and Telegraph Company or its Associated Companies. (p. 9.)

The Bell companies cooperate with these connecting companies so that as nearly as possible a common standard of service may be maintained and any one, any time, anywhere, can pick up a telephone and talk to any one else, anywhere, quickly and economically, whether they are on Bell-owned lines or on the lines of connecting companies, it being the aim to effect a single, uniform, national service. (p. 9.)

We aim to adapt our organization to carry on most effectively and efficiently at all times. As the business grows and the country grows, conditions change. In the early days of the telephone business it seemed essential that telephone instruments be owned and maintained by a central organization. This condition no longer obtains, and, therefore, as previously stated, the telephone instruments heretofore owned by the American Telephone and Telegraph Company were sold to the operating companies and a reduction was made in the charge for services furnished under service contracts with those companies. In 1926 this charge was reduced from 4½ per cent to 4 per cent of their gross telephone revenues, and this present reduction to 2 per cent will result in revenues to the American Telephone and Telegraph Company somewhat less than the estimated cost of performing its services under these contracts. This is, however, in accord with our efforts to assist our Associated Companies in keeping down the cost of telephone service in every way practicable. (pp. 9-10.)

1928

The net earnings for the year of $242,700,000 were at the rate of 6.6 per cent on the cost of plant and other assets. (p. 1.)

Fair and just salaries and wages to the personnel, reasonable, regular dividends to the stockholders together with an opportunity for them to make additional investments in the business from time to time on favorable terms, and further improvements in service or reduction in charges for service to telephone users so far as financial safety permits, are fundamental in the policy of the management to furnish the most telephone service and the best at the least cost. (p. 3.)

The Western Electric Company, Incorporated, reduced prices in 1928 by about $20,000,000 on the present annual volume of purchases by Bell System companies. This was accomplished largely by increased efficiency and improved methods of manufacture. (p. 4.)

* * * The research and development work of the American Telephone and Telegraph Company and its Bell Telephone Laboratories is a principal factor in the improvement and extension of telephone service and the maintenance of the low costs of furnishing that service. The major part of this work is improving the art of transmission and improving switchboards, cables and other telephone equipment, looking toward better service and reduction in the cost of both apparatus and operation. During the year more than 75 major improvements in central office equipment were standardized and made available, including a new manual private branch exchange board, a toll tandem board, an automatic residence private branch exchange and an 1818-pair exchange cable which has 50 per cent more conductors than any previous cable. Approximately 6,000 minor changes, modifications and improvements were perfected to facilitate manufacture, improve operation, or to meet special plant situations. Hundreds of major problems of this sort are constantly under study and investigation by the development and research engineers and scientists. The cumulative effective of such studies continues to play a vital part in furnishing the most and best possible telephone service at the least cost. (p. 9.)

In United States District Court

[Title omitted]

Order Approving Statement of Evidence

The narrative statement of evidence in three printed volumes entitled Volume II, Plaintiff's Direct Evidence, Volume III, Plaintiff's Rebuttal Evidence, Volume V, Defendant's Evidence, together with the printed exhibits of the Illinois Commerce Commission, contained in Volume I, the printed exhibits of plaintiff contained in Volume IV, and the printed exhibits of the City of Chicago, Intervenor, contained in Volumes VI and VII of the Transcript of Record, herein, constituting all of the evidence offered and admitted in the above entitled cause, are hereby approved and the said printed volumes (numbered I, II, III, IV, V, VI, and VII, are hereby ordered filed as a statement of the evidence to be included in the Transcript of the Record on Appeal in the above entitled cause, as provided by Equity Rule 75.

James H. Wilkerson, Judge.

Clerk's certificate to foregoing transcript omitted in printing.

In Supreme Court of the United States

Statement of Points Upon Which Appellants Intend to Rely, Under Rule 13, and Designation as to Record—Filed May 9, 1930

The record in this cause has been printed upon stipulation of the parties and pursuant to order of Court (Rec. Vol. 1, p. 213, 214), and was docketed in this Court on April 25, 1930.

Now come the Appellants and file the following statement of the points on which they intend to rely—the parts of the

record necessary for the consideration thereof being the printed record now on file.

The said points are that the District Court erred in not giving heed to certain facts concerning its relations with the American Telephone & Telegraph Company respecting long distance business, as set forth in the following assignments of error:

"1. The court erred in failing to find and to give effect to the fact that the American Telephone & Telegraph Company, as part of its own long distance service, shared, free of charge, the use of more than $55,000,000 book cost of plaintiff's local exchange property and shared, free of charge, the use of more than $18,000,000 items of expense incurred by the plaintiff in connection therewith.

2. The court erred in failing to find and to give effect to the fact that the compensation paid to the plaintiff under the rental arrangement made in 1911 for the use of plaintiff's toll trunks was unfair and resulted in losses to the plaintiff.

3. The court erred in failing to find and to give effect to the fact that the arbitrary payment made to the plaintiff by the American Telephone & Telegraph Company for collecting, billing and settling the accounts of the American Telephone & Telegraph Company's long distance service on the basis adopted prior to 1910 was unfair and resulted in losses to the plaintiff.

4. The court erred in failing to find and to give effect to the fact that the rental paid to the plaintiff for the exclusive use of its long lines property by the American Telephone & Telegraph Company in the latter's long distance service under arrangements made prior to 1915 were unfair and resulted in losses to plaintiff.

5. The court erred in failing to find and to give effect to the fact that plaintiff was entitled to receive, but in fact did not receive, 'a reasonable and suitable division of the tolls and profits' of the long distance business of the American Telephone & Telegraph Company transacted in the Chicago Exchange under Section 10 of the original license contract of December 23, 1881.

6. The court erred in failing to find and to give effect to the fact that the arrangement between the plaintiff and the American Telephone & Telegraph Company, and the payment for the use of plaintiff's property and facilities in the long distance service of the American Telephone & Telegraph Company were unfair and resulted in losses to the plaintiff, which, if added to the admitted net earnings of the plaintiff, would result in an adequate legal return on its property." (Rec. Vol. 1, p. 204.)

The District Court erred, as pointed out in assignment of errors numbered 7, which is as follows:

"7. The court erred in failing to find and to give effect to the fact that the American Telephone & Telegraph Company diverted $6,000,000 from the revenue of the plaintiff in violation of orders of the Illinois Commerce Commission." (Rec. Vol. 1, pp. 204-5.)

The District Court erred in not taking into consideration many services performed by plaintiff for the American Telephone & Telegraph Company unfairly, free of charge or for an inadequate charge, and in disregarding exorbitant charges, and duplicate charges paid by the plaintiff to the American Telephone & Telegraph Company for services performed, and charges for services not performed for it by said American Telephone & Telegraph Company, as set forth in assignments of error 8 to 11, both inclusive, and 13 to 15, both inclusive, which are as follows:

"8. The court erred in failing to find and to give effect to the fact that the American Telephone & Telegraph Company made extensive use of the employees of the plaintiff to sell the stock of the American Telephone & Telegraph Company to the public and charge the cost thereof to the plaintiff.

9. The court erred in failing to find that the amount paid to the American Telephone & Telegraph Company by the plaintiff for rental of instruments was unfair to the plaintiff.

10. The court erred in failing to find and to give effect to the fact that the plaintiff paid the American Telephone

& Telegraph Company exorbitant, duplicated and discriminatory fees for alleged services and assistance.

11. The court erred in failing to find and to give effect to the fact that the plaintiff was making duplicate payments to the American Telephone & Telegraph Company for the use of patents on telephones and apparatus."

"13. The court erred in failing to find and to give effect to the fact that the American Telephone & Telegraph Company received special benefits from the plaintiff through filing consolidated Federal Income Tax Returns and charging the plaintiff on the basis of a separate return.

14. The court erred in failing to find and to give effect to the fact that the plaintiff rendered special financial services to the American Telephone & Telegraph Company without charge.

15. The court erred in failing to find and to give effect to the fact that the American Telephone & Telegraph Company apportioned to the plaintiff exorbitant charges for the equipment sold by the Western Electric Company." (Rec. Vol. 1, p. 205.)

The District Court erred in failing to find the 1919 Memorandum void, as set forth in assignment of error numbered 12, as follows:

"12. The court erred in failing to find that the 1919 Memorandum providing for the rendering of and payment for alleged services of the American Telephone & Telegraph Company was void in that it violated the Public Utilities Act of Illinois and the Uniform System of Accounts prescribed by it." (Rec. Vol. 1, p. 205.)

The District Court erred in failing to find the net return of plaintiff adequate on the basis of the standards set up be the Bell System, as pointed out in assignments of error 16 and 17, as follows:

"16. The court erred in failing to find that the admitted net return of the plaintiff was legally adequate upon the standards of the average return of the Bell Telephone Companies throughout the Bell System.

17. The court erred in failing to find that the admitted net return to the plaintiff was legally adequate according to the tests for adequate returns used by the Bell Telephone Companies throughout the entire Bell System as a basis for financing their respective operations." (Rec. Vol. 1, p. 205.)

The District Court erred in not taking into account the conduct of the American Telephone & Telegraph Company, as set forth in assignments of error 18 to 23, inclusive, as follows:

"18. The court erred in failing to find that the American Telephone & Telegraph Company destroyed the possibility of determining from the records of the plaintiff before this court the revenues and operating expenses of the plaintiff.

19. The court erred in failing to find and to give effect to the fact that part of the net earnings of plaintiff available for return upon the fair value of plaintiff's property used and useful in rendering telephone service in its Chicago Exchange is in the possession of the American Telephone & Telegraph Company—the record of which is not before this court.

20. The court erred in failing to find that the American Telephone & Telegraph Company destroyed the allegiance of the employees of the plaintiff and transferred their allegiance to the American Telephone & Telegraph Company through the sale of stock to such employees and through the operations of the Employees' Benefit Plan.

21. The court erred in failing to find that the American Telephone & Telegraph Company usurped the public utility functions of the plaintiff and reduced it to a mere agency and instrumentality of its own business.

22. The court erred in failing to find that the American Telephone & Telegraph Company, in the operation of the public utility functions of the plaintiff, apportioned unlawfully the costs of the services rendered by it to the plaintiff on a contract basis.

23. The court erred in failing to find that the American Telephone & Telegraph Company destroyed the Going

Value of the plaintiff as a business enterprise." (Rec. Vol. 1, p. 206.)

The District Court erred in giving no effect to plaintiff's violation of an order of the State Commission, which is still in effect and here unassailed, as set forth in assignment of error number 24, as follows.

"24. The court erred in failing to find and to give effect to the fact that plaintiff's figures of expenses for each year since 1921 included in its charges for depreciation for such years, charges admittedly in violation of the Order of the Public Utilities Commission of Illinois entered December 20, 1920." (Rec. Vol. 1, p. 206.)

The District Court erred in holding that the State Commission did not give proper consideration to reproduction cost new, as set out in assignment of error number 25, as follows:

"25. The court erred in finding that proper consideration was not given by the Illinois Commerce Commission to the element of reproduction cost new in that the court used as a basis for its finding the net valuation found by the Illinois Commerce Commission after deducting the amount of depreciation." (Rec. Vol. 1, p. 206.)

The District Court erred in finding that an estoppel existed against the City of Chicago, as set forth in assignment of error number 26, as follows:

"26. The court erred in finding that because the Illinois Commerce Commission sought to enforce prescribed rates for service by the plaintiff as a corporate entity, the City of Chicago is estopped to show before this court that the American Telephone & Telegraph Company had reduced the plaintiff to an agency or instrumentality of the business of the American Telephone & Telegraph Company during the period under inquiry by the court." (Rec. Vol. 1, pp. 206-7.)

The District Court erred in its conception of interstate commerce, as set forth in assignment of error number 27, as follows:

"27. The court erred in finding that the act of the plaintiff in leasing its property to the American Telephone & Telegraph Company for use in the latter's long distance service, and the act of receiving rental by the plaintiff for the use of such property from the American Telephone & Telegraph Company were acts of interstate commerce over which this court had no jurisdiction." (Rec. Vol. 1, p. 207.)

The District Court erred in findings as to Reserve for Depreciation, as set forth in assignments of error 28 and 29, as follows:

"28. The court erred in finding that the sum of $26,000,000 represented by the Reserve for Depreciation was not admissible as evidence of the amount of depreciation in the value of the property of the plaintiff.

29. The court erred in finding the the sum of $26,000,000 represented by the Reserve for Depreciation could not legally be deducted from the valuation of the plaintiff's property used as a rate base." (Rec. Vol. 1, p. 207.)

The District Court erred, as set forth in assignments of error 30 to 32, both inclusive, as follows:

"30. The court erred in not dismissing the plaintiff's bill of complaint for want of equity.

31. The court erred in entering the final decree of February 28, 1930.

32. The court erred in not dismissing the plaintiff's bill of complaint because the plaintiff had an adequate remedy at law." (Rec. Vol. 1, p. 207.)

The District Court erred in holdings as to the plaintiff's accounts, accounting methods and facts relating thereto and to conclusions thereon, as set forth in assignments of error 33 to 45, both inclusive, as follows:

"33. The court erred in holding that the plant account was not inflated.

34. The court erred in holding that the appraisal as of June 30, 1923, was a reasonably accurate basis for determining Reproduction Cost new of the physical property of the

plaintiff used and useful in rendering telephone service in Chicago as of June 30, 1923.

35. The court erred in holding that an interstate toll separation of plaintiff's property could not affect the result in the case.

36. The court erred in using as the measure of use of the property and facilities of the plaintiff in the long distance service of the American Telephone & Telegraph Company, the number of calls in that service orginating in the Chicago Exchange without reference to the use of property or operating labor per call.

37. The court erred in finding any proper evidence upon which to base a finding of a fair value of the property of the plaintiff used and useful in rendering telephone service in Chicago as of June 30, 1923.

38. The court erred in failing to find that the rate of return upon the plaintiff's property used and useful in rendering telephone service in Chicago was legally adequate.

39. The court erred in finding the rate of return upon plaintiff's property used and useful in rendering telephone service in Chicago confiscatory.

40. The court erred in failing to dismiss the plaintiff's bill of complaint for want of equity because of its violation of the Order of the Public Utilities Commission of Illinois entered December 20, 1920.

41. The court erred in finding that the fair value of all property of plaintiff used and useful in rendering telephone service in Chicago on June 30, 1923 (after deducting 10% depreciation) was at least $125,000,000.

42. The court erred in holding that the Reproduction Cost new of the physical property of the plaintiff used and useful in rendering telephone service in Chicago as of June 30, 1923 (excluding working capital, materials and supplies, work in progress, and not including going value), was at least $145,000,000.

43. The court erred in finding that the Reproduction Cost new, less depreciation of the physical property of plaintiff

used and useful in rendering telephone service in Chicago (excluding working capital, materials and supplies, work in progress and not including going value), as of June 30, 1923, was at least $130,500,000.

44. The court erred in finding that the original cost of said physical property (excluding working capital, materials and supplies, work in progress and not including going value, but including $5,000,000 of omitted overheads), as of June 30, 1923, was $101,600,000, as shown by the books and records of plaintiff.

45. The court erred in making an allowance for Going Value." (Rec. Vol. 1, pp. 207-208.)

The District Court erred in the relief granted and in certain conclusions, as set forth in assignments of error 46 to 62, both inclusive, as follows:

"46. The court erred in decreeing that all sums of money collected by the plaintiff under the terms of the preliminary and interlocutory decrees entered, respectively, September 27, 1923, and December 21, 1923, in excess of the sums which would have been collected under the rates prescribed by the Order of the Illinois Commerce Commission dated August 16, 1923, are the property and funds of the plaintiff and belong to it, and that plaintiff is released from all obligation to refund to its subscribers any sums of money collected by it under the terms of the said preliminary and interlocutory decrees.

"47. The court erred in finding that the plaintiff is released and discharged from any and all liability on account of the certain bond, in the penal sum of One Million Dollars, executed by the plaintiff and filed with this court pursuant to the terms of the temporary injunction entered in said cause on December 21, 1923.

48. The court erred in finding that plaintiff shall recover its taxable costs and disbursements of the defendants and intervenor-defendant.

49. The court erred in decreeing that the rates prescribed by Illinois Commerce Commission in its order of August

16, 1923, are confiscatory and deprive plaintiff of its property without due process of law and deny plaintiff the equal protection of the laws in violation of its rights under the Constitution of the United States. That said order was therefore null and void and plaintiff never had any adequate remedy at law in the premises.

50. The court erred in holding that the plaintiff was relieved in the case at bar from the burden of proof imposed upon it by law because of the facts that the defendants did not avail themselves of the Court's offer of an immediate trial on the merits at the time that the preliminary injunction was granted on December 21, 1923, but elected to appeal on January 18, 1924, to the Supreme Court from the Order granting the temporary injunction, which Order was affirmed by the Supreme Court on October 19, 1925; that thereafter the plaintiff filed a motion for a judgment on the pleadings on November 27, 1926, which motion was denied by the court on July 11, 1927; that thereafter on the 20th day of February, 1929, there was a peremptory setting of the cause for trial on April 15, 1929; that prior to the 20th day of February, 1929, 'postponements were sought repeatedly by the city on the ground of change of counsel, lack of preparation and inability to procure money with which to employ experts'.

51. The court erred in holding that the American Telephone & Telegraph Company did not so dominate and control the plaintiff company as to reduce the plaintiff company to a mere agency or instrumentality of the American Telephone & Telegraph Company.

52. The court erred in holding that the method used by the plaintiff in separating its interstate property is reasonable.

53. The court erred in holding that the evidence does not disclose any abuse of discretion or fraud in connection with the division of interstate tolls between the American Telephone & Telegraph Company and the plaintiff.

54. The court erred in decreeing that the defendants, the persons constituting the Illinois Commerce Commission of the State of Illinois, the Attorney General of the State of

Illinois and their respective successors in office, and the City of Chicago, intervenor-defendant, be severally and permanently enjoined and restrained from attempting to compel plaintiff, its officers, agents or employees hereafter to observe or enforce the rates, charges and rentals for telephone service prescribed by the order of the Illinois Commerce Commission, dated August 16, 1923, and attached to the Bill of Complaint as Exhibit 'A'.

55. The court erred in decreeing that the defendants, the persons constituting the Illinois Commerce Commission of the State of Illinois, the Attorney General of the State of Illinois and their respective successors in office, and the City of Chicago, intervenor-defendant, be severally and permanently enjoined and restrained from taking any steps of proceeding against the plaintiff, its officers, agents or employees, to enforce any penalties or any remedy against the plaintiff for disregarding the rates prescribed by the order of the Illinois Commerce Commission, dated August 16, 1923, and from taking any such steps or proceedings against the plaintiff, its officers, agents, or employees, to enforce any penalties or any other remedy against the plaintiff for charging rates in excess of the rates prescribed in said order of the Illinois Commerce Commission, dated August 16, 1923.

56. The court erred in failing to find that the expense of depreciation for the year 1923 was excessive by $2,200,000.

57. The court erred in finding that in the transactions with the Western Electric Company there was no abuse of discretion of the directors and officers of the plaintiff which constitute either fraud or injury to the public.

58. The court erred in deducting from the valuation of the property of plaintiff a depreciation of 10%.

59. The court erred in refusing to hold that the plaintiff was in a court of equity with unclean hands.

60. The court erred in finding that the legal inadequacy of rates amounting to confiscation in 1923 applied with increasing force to the succeeding years.

61. The court erred in finding that the defendants sought delays and attempted to take advantage of them by projecting the effect of the Order of 1923 to a time when changed

conditions required another investigation by the Commission, if new rates were to be established.

62. The court erred in finding that the amount available to plaintiff for return on its property used and useful in rendering the telephone service in Chicago in 1923 was $6,740,000, or less than 5½%." (Rec. Vol. 1, pp. 208-211.)

The District Court erred in excluding certain prof-erred evidence, as set forth in assignments of error 63 and 64, as follows:

"63. The court erred in refusing to admit in evidence or to consider City of Chicago's Exhibit No. 78, being a Temporary Injunction entered on February 8, 1913, by Judge Dever in the case of Read et al. v. Central Union Telephone Co., et al., in the Superior Court of Cook County, Illinois, in which said Temporary Injunction the defendants, Chicago Telephone Company and the American Telephone & Telegraph Company were enjoined, among other things, from seeking to enforce an indebtedness of $32,727,000 alleged in the bill of complaint as claimed by the American Telephone & Telegraph Company and the Chicago Telephone Company to be owing to them from the Central Union Telephone Company, and from transferring, assigning and pledging, or in any way disposing of, any demand notes made by the Central Union Telephone Company and held by them to represent said indebtedness.

64. The court erred in refusing to admit in evidence or to consider City of Chicago's Exhibits 157, 157-A, 157-B, 157-C, 157-D, 157-E, 157-F, 157-G, 157-H, 157-I and 157-J, all of which said exhibits contain facts relating to the same transaction, to-wit: the sale of the Illinois property of the Central Union Telephone Company to plaintiff, which facts are: That in 1913 there was owing to the American Telephone & Telegraph Company, from the Central Union Telephone Company $34,303,000 (157-E), which indebtedness increased by December 31, 1919, to $56,117,000 (157-J); that between 1913 and April 15, 1919, the Central Union Telephone Company was in receivership (157 and 157-B); that during this period it operated at a loss (157); that in 1914 it had outstanding $5,450,000 capital stock against which there was an impairment of capital account in the amount

of $4,600,000; that by April 30, 1919, the impairment of this capital account had increased to $11,900,000, and by December 31, 1919, to $13,990,000; that of this capital stock, the American Telephone & Telegraph Company owned $5,400,000 of capital stock which had been wiped out (157-A); that during the year 1920 the properties of the Central Union Telephone Company were divided up and transferred to the plaintiff, to the Ohio Bell Telephone Company and to the Indiana Bell Telephone Company, all three of which companies were subsidiary companies of the Bell System and in all of which companies the American Telephone & Telegraph Company owned practically all of the stock (157-F, 157-G and 157-H); that the proceeds of these three sales were used to pay off the entire indebtedness to the American Telephone & Telegraph Company in the amount of $60,472,000 (157-J) and also wiped out the losses of the Central Union Telephone Company and left it with assets sufficient to cover its entire capital stock at $100 a share, and created a surplus of $1,360,000 (157-I); and that the sale to the plaintiff resulted in a reduction in the corporate deficit of the Central Union Telephone Company, in the amount of $3,700,000 (157-H), and liquidated $15,500,000 of indebtedness." (Rec. Vol. 1, pp. 211-212.)

Proof of service on the plaintiff is appended hereto.

P. H. Moynihan, Frank L. Smith, Cicero J. Lindly, Hal W. Trovillion, William Burkhardt, Edward H. Wright, William J. Smith, Constituting Illinois Commerce Commission, Appellants. Oscar E. Carlstrom, Attorney General of the State of Illinois. City of Chicago, Appellant, by Samuel A. Ettelson, Corporation Counsel, and George I. Haight, Edmund D. Adcock, Benjamin F. Goldstein, Special Counsel.

Received copy of the foregoing statement of points upon which appellants intend to rely, under Rule 13, this 7th day of May, A. D. 1930.

H. V. Tenney and W. C. Bergs, Attorneys for Illinois Bell Telephone Company, Appellee.

[File endorsement omitted.]